S. HRG. 100-417

REPORT OF THE SOUTHERN STATES ENERGY BOARD'S ADVISORY COMMITTEE ON THE TENNESSEE VALLEY AUTHORITY

HEARING

BEFORE THE

SUBCOMMITTEE ON NUCLEAR REGULATION

OF THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS UNITED STATES SENATE

ONE HUNDREDTH CONGRESS

FIRST SESSION

DECEMBER 9, 1987

Printed for the use of the Committee on Environment and Public Works

U.S. GOVERNMENT PRINTING OFFICE

81-417 WASHINGTON : 1988

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

S321-21

81-417 O - 88 - 1

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

QUENTIN N. BURDICK, North Dakota, *Chairman*

DANIEL PATRICK MOYNIHAN, New York
GEORGE J. MITCHELL, Maine
MAX BAUCUS, Montana
FRANK R. LAUTENBERG, New Jersey
JOHN B. BREAUX, Louisiana
BARBARA A. MIKULSKI, Maryland
HARRY REID, Nevada
BOB GRAHAM, Florida

ROBERT T. STAFFORD, Vermont
JOHN H. CHAFEE, Rhode Island
ALAN K. SIMPSON, Wyoming
STEVE SYMMS, Idaho
DAVE DURENBERGER, Minnesota
JOHN W. WARNER, Virginia
LARRY PRESSLER, South Dakota

PETER D. PROWITT, *Staff Director*
BAILEY GUARD, *Minority Staff Director*

SUBCOMMITTEE ON NUCLEAR REGULATION

JOHN B. BREAUX, Louisiana, *Chairman*

DANIEL PATRICK MOYNIHAN, New York
GEORGE J. MITCHELL, Maine
HARRY REID, Nevada

ALAN K. SIMPSON, Wyoming
STEVE SYMMS, Idaho
JOHN W. WARNER, Virginia

CONTENTS

	Page
Breaux, Hon. John B., U.S. Senator from the State of Louisiana, opening statement of	1
WITNESSES	
Baliles, Hon. Gerald L., Governor, Commonwealth of Virginia and Chairman, Southern States Energy Board, accompanied by Hon. Elizabeth B. Lacy, Commissioner, State Corporation Commission	2
Dean, Charles H., Jr., Chairman, Tennessee Valley Authority, accompanied by John B. Waters, Director, Tennessee Valley Authority, and William F. Willis, General Manager, Tennessee Valley Authority	13
Written statement	39
Additional statements submitted for the record:	
Shelby, Hon. Richard C., U.S. Senator from the State of Alabama	23
Lloyd, Hon. Marilyn, a Representative in Congress from the State of Tennessee	28
Freeman, Richard M., former director, TVA	43

REPORT OF THE SOUTHERN STATES ENERGY BOARD ADVISORY COMMITTEE ON THE TENNESSEE VALLEY AUTHORITY

WEDNESDAY, DECEMBER 9, 1987

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON NUCLEAR REGULATION,
Washington, DC.

The subcommittee met, pursuant to notice, at 9:37 a.m., in room 406, Dirksen Senate Office Building, Hon. John B. Breaux (chairman of the subcommittee) presiding.

Present: Senators Breaux and Warner.

OPENING STATEMENT OF HON. JOHN B. BREAUX, U.S. SENATOR FROM THE STATE OF LOUISIANA

Senator BREAUX. The subcommittee will please come to order.

This morning, the Subcommittee on Nuclear Regulation meets to conduct an oversight hearing on the report of the Southern States Energy Board Advisory Committee on the Tennessee Valley Authority. This report, the product of over 6 months of effort by a task force assembled under the leadership of Governor Baliles of Virginia, is the latest and perhaps one of the most comprehensive examinations of the strengths and weaknesses of the Tennessee Valley Authority.

As members are aware, the Tennessee Valley Authority, TVA, was created by Congress in 1933 as a Federal corporation charged with the regional development and conservation of the valley of the Tennessee River, an area covering approximately 40,000 square miles and portions of seven southern States. Over the years, the principle mission of the TVA has focused on efforts to control flooding and to provide navigation, stimulate economic development, and to bring electricity to this vast area of our Nation.

In most respects, the TVA has fulfilled its mission admirably. In recent years, the TVA has come in for its share of criticism, both within the valley area and here in Washington. The reasons for the criticisms are varied, but I believe it can generally be traced to two major concerns, the return or lack thereof to the American taxpayer from the continued appropriation of revenues for certain nonpower programs and the problems that have beset the TVA's power programs, in particular, its nuclear power program.

It is in this latter arena that the report recently issued by the Southern States Energy Board focuses the greatest attention. In particular, the advisory committee formed by the SSEB was

charged generally with investigating what it will take to ensure that the TVA retains the vitality and the capacity to provide the energy that will be necessary to continue building the economic prosperity of its service area.

As a result of its effort, the advisory board made four general recommendations: first, that there must be a fundamental change in TVA's management structure. To this end, the committee recommended the creation of a larger board comprised of part-time directors who would be responsible for policy making and oversight of TVA's management.

Second, that the position of chief executive officer should be created by statute. The committee further recommended that this CEO should be responsible for the implementation of board policies and assume all management responsibilities now held by the three-member board and the general manager.

Third, that the Congress should eliminate the statutory pay cap which currently limits salaries for TVA staff at $77,500 per year.

Fourth, that steps must be taken to increase the accountability of TVA to the people that it serves and the Congress.

Many of these recommendations have been well received by the public and by the existing TVA board. Others have not. Legislation which would address some of these issues has been introduced in both the House and the Senate. In fact, it is my understanding that the House held hearings on such legislation just yesterday.

Senator Richard Shelby, the sponsor of legislation here in the Senate will be joining us at some time during this morning's hearing.

In any event, our effort today is just a beginning for what I promise will be an extensive oversight by this subcommittee on this subject. The regional and national investment in the TVA requires nothing less.

I would like at this time to welcome our first panel, and a very distinguished panel it is. The Honorable Gerald Baliles, Governor, of the State of Virginia and also chairman of the Southern States Energy Board, and the Honorable Elizabeth Lacy is Commissioner for the State Corporation Commission.

We welcome you both and will be pleased to receive your testimony.

STATEMENT OF HON. GERALD L. BALILES, GOVERNOR, COMMONWEALTH OF VIRGINIA AND CHAIRMAN, SOUTHERN STATES ENERGY BOARD, ACCOMPANIED BY HON. ELIZABETH B. LACY, COMMISSIONER, STATE CORPORATION COMMISSION

Mr. BALILES. Thank you, Senator.

For more than 25 years, the Southern States Energy Board has sought to improve the South's economy through programs in energy, science, and technology. The board's existence and its activity reflects a simple reality in the South: our economy depends on adequate, reliable, and affordable sources of energy.

Today, unfortunately, the South finds that one of its major suppliers of energy, an institution of great importance to the region, is threatened. That institution is the Tennessee Valley Authority,

and its current predicament led the Southern States Energy Board to organize an advisory board or committee to take a hard look.

As chairman of the Southern States Energy Board when the advisory committee was commissioned, I am here today to review with you the results of that examination. Let me put our effort in perspective.

Less that six decades ago, the South was a land of hardship, the object of three-quarters of a century of exploitation and neglect and the site of unconscionable waste of resources, both human and material. The Tennessee Valley Authority was established to do something about it—and it did, admirably.

The TVA replaced despair with hope and resignation with productivity. It released the moral and human energy of a people.

John Gunther who toured the nation in the 1940's saw what the TVA had accomplished and wrote, "Quite possibly, the TVA idea is the greatest single American invention of this century." In short, the TVA produced power and made the South a place of opportunity.

Understand this: the TVA is not just another utility. The TVA provides service in or is adjacent to 11 of the 16 States belonging to the Southern States Energy Board. It provides electricity at wholesale to 160 municipal and cooperative distributors who serve millions of customers throughout the South.

The TVA also provides power directly to a number of industrial customers and Federal installations. Through high voltage interconnections, TVA is linked directly to 13 southeastern utilities and indirectly to all of the companies in the Eastern Interconnected System.

So, as I say, the TVA is not just another utility, a fact which makes its current condition all the more ominous. Consider the nuclear program.

At first, TVA's nuclear program was to consist of 17 units. Eight units have been cancelled, at a loss of $4 billion. Five of TVA's nuclear units have been shut down. Four remain under construction.

Altogether, TVA's nuclear investments amount to $15 billion and represent almost two-thirds of its total assets, an investment that is producing no electricity and no revenue.

Of course, the advisory board or committee could have looked at only TVA's nuclear program which is the most visible manifestation of the TVA dilemma. However, the board decided to take a broad view of TVA, including its current operational, financial, and management structure.

The board felt that by addressing the issues involved in the nuclear program without examining the underlying causes, the board would not serve the long-term interests of the TVA.

TVA operates under a different set of rules from other utilities. It doesn't deal with stockholders or rate hearings, and it has limits on what it can pay top management. Furthermore, the TVA is run by a three-member committee, and it has been without one of its members for a year.

These are the kinds of things the board considered in its approach to TVA's problems. And, as it turned out, the board's principal conclusion was that TVA's problems stem from a fundamen-

tal lack of a workable structure, management accountability, and adequate compensation.

But before I go on to the board's findings, let me briefly describe how it proceeded.

For the membership of the advisory committee, the Southern States Energy Board brought together an impressive group of individuals, including Fred Smith, chairman and CEO of Federal Express Corporation; Alex Radin, chairman of the Consumer Energy Council of America; Vice-Admiral Eugene P. Wilkinson, former president of the Institute of Nuclear Power Operations and First Captain of the U.S.S. *Nautilus;* and Victor Gilinsky, former member of the Nuclear Regulatory Commission.

In addition, the board included representatives of private and public power utilities as well as academic specialists.

The advisory board of experts organized three subcommittees to address the issues of organization and management, power, and finance. The subcommittees spent a considerable amount of time reviewing statistics, information, and reports of all aspects of operations and management of the TVA.

Various drafts of their findings were circulated, differences of opinion were noted, and priorities emerged over the weeks of work that went into these reports. The final report, however, speaks for the Southern States Energy Board and represents a consensus of all advisory committee members, and I believe this final report offers positive guidelines for addressing the problems of the TVA.

The recommendations that emerged for consensus are these:

First, establish a modern board structure. Replace the three-member full-time board with a nine-member part-time board, making clear the differences between policy making and the responsibility for TVA's day to day operations.

Second, authorize a chief executive officer who is responsible for the implementation of board policy and who can assume all management responsibilities now held by the current three-member full-time board. Also, create senior staff positions to be responsible for developing long-range plans for capital construction, rates and demand forecasts, and plans for adequate financial management.

Third, eliminate the statutory pay cap, because the current limit on salaries TVA is able to pay is the single most devastating handicap to the organization's ability to recruit and retain qualified staff.

Fourth, establish accountability. The committee recommends the creation of formal rate review processes, standard and routine audit procedures and independent audit personnel, annual board reviews of construction and operations plans, and an annual business plan.

Can TVA respond to the billions of dollars of debt and a troubled nuclear program as it prepares for a 21st century marketplace? I believe the answer is yes but only if the changes recommended in this report are used as the basis for changes now, and this report is the place to start.

Finally, let me say this: the economic challenges we face in the markets of the world tell us in no uncertain terms that we must work together. Within our society, competing interests exist. There is no denying that. But I will say to you that if we are to success-

fully restore the TVA's productive capacity, then it must be the product of concerted cooperative effort between the public and private sectors of our society.

There is only one way that the changes we have recommended can be made, and that is by Congressional action. The TVA Act must be revisited and the basic structure of TVA altered to a modern corporate model.

There are those who would argue against reopening the TVA Act, contending that now is not the time. I would urge you to reject that argument.

The TVA law has been revised dozens of times throughout its history, and we need to revise it again. We should give the TVA the means to bring about corrective action and to get its power program back on course.

In the final analysis, the TVA is not an isolated regional issue. It is a great national resource and, with expeditious action by the Congress, we can preserve it for the future.

Thank you, Mr. Chairman.

Senator BREAUX. Thank you very much, Governor.

Judge Lacy, do you have any comments at this time?

Ms. LACY. Not at this time, Senator, but we would be happy to answer any questions that you may have.

Senator BREAUX. Thank you.

I want to congratulate you, Governor, and the members of the board, and Judge Lacy for the time and effort that was put into this report. It was not something that was put together in a haphazard fashion but just the opposite. Apparently, a great deal of time and effort went into it, and it is a report that apparently has been circulated for comments among a number of outstanding individuals who participated in the product. It certainly gives us a starting point, if you will, to try to develop whatever congressional response is needed to the recommendations of the report.

I know the members of the committee will be most interested in becoming involved to a greater degree as to what legislation perhaps is needed in order to address the concerns of the report. It has served a very useful purpose, I think, for this committee.

As I indicated in my statement, apparently the House has already moved on or is beginning to move on some of the legislative recommendations. A package has been developed. Senator Shelby has introduced some recommendations over here, and we will be hearing from him when he drops in to make his comments.

Let me ask some questions on the recommendations themselves.

You recommend a larger board. We are looking at legislation right now with the Nuclear Regulatory Commission that restricts their commission type of format and provides for a single administrator to bring the numbers down to one person as opposed to three. You are recommending an even larger board than we have now, from three to nine part-time members.

It seems that most of the recommendations we have been getting are to streamline regulatory boards and to make an individual become more responsible and visible. You seem to have a recommendation that broadens the board in tripling its size.

Can you give us some support as to why you recommended that?

Mr. BALILES. Senator, I would be glad to respond and then let Judge Lacy who chaired the advisory committee's work respond further.

The problem you have now is that you have a three-member full-time board that is responsible for policy making, executive functions, and rate making all combined into one entity. It doesn't work.

What we propose is to follow the model that you will find in modern corporate America today, and that is to separate policy making from executive functions. If you have a board that is large enough to reflect the diversity of management and accounting and financial and power backgrounds coming to town to meet on a periodic basis, they can develop the policy and guidelines for TVA's operations.

The policies that are established by the board would be carried out by a corporate executive, a CEO, much the way that policy is carried out today in our corporations in this country. It is very similar to the governmental structure that you will find in many State governments today where you have a policy board setting the policy and a director or commissioner or CEO carrying out those policies. That was the basis for the recommendation.

Senator BREAUX. Let me ask you, Governor, about some of the principal functions, for instance, rate making, financial decisions, economic planning decisions that TVA would have to make. Would they be made by that board as a recommendation to the chief executive officer? How would that be done?

Ms. LACY. Senator, I will respond to that question. Those policies would be developed by the full-time employees of TVA under the direction of the CEO pursuant to policy guidelines which may have been set by the board but then would be actually presented to the board for ratification as in many kinds of things that happen, as the Governor has said, in a private corporation.

We have recommended, although not recommended that it be put in statute, the creation of certain chief executive types of officers in addition to the CEO and that there be annual business plans developed and finance plans developed as any corporation would for ratification and adoption by the board of directors.

In effect, I think we are recommending some streamlining here, because you would have one person very visible who has the responsibility for implementation and running of this agency on a daily basis subject to review by a larger board, a nine-member board rather than a three-member board and rather than three people being responsible on a daily basis.

Senator BREAUX. Do your recommendations consider whether the chief executive officer would have, say, a veto over a policy recommendation by the board or a rate making recommendation by the board, or would he be bound to carry out the board's recommendations.

Ms. LACY. He would be bound to carry out the board's recommendations. The CEO would not be a member of the board of directors but would attend all meetings.

You mentioned rate setting. We have recommended and would envision that there would be hearings on rates generally conducted by something like an administrative law judge with plenty of op-

portunity for cross examination, evidence of expert witnesses, and so forth. The judge would issue an opinion or recommendation which could be commented on and then would go up to the board for final adoption or modification and then be published at that point.

So, the CEO would not have a veto power over actions of the board of directors.

Mr. BALILES. Senator, let me come back to your comment earlier about the size of the board.

You could write into legislation that the board could be of any size, seven members, eight members, ten members, or fifteen. The reason that the advisory committee, representing a broad section of opinion in this country, recommended nine was that it was looking for enough people who could bring a diversity of views to the deliberations of something as big and as important as TVA.

The President and the Congress should be able to put people in position who reflect a diversity of opinion in management, finance, power production. You don't get that with a much smaller board.

Senator BREAUX. Do you go so far as to make recommendations as to how the board members would be chosen? Are they to be nominated by the President and confirmed by the Senate, any criteria for the expertise that they should have in order to sit on the board?

Governor, all of us on the political end of the spectrum sometimes have people nominated or recommended to us that as far as ability is concerned have very little resemblance to the boards for which they are being nominated. That is something I get a little concerned about.

Ms. LACY. Senator, our recommendations do go to that point, and they are that the nomination would be made by the President with confirmation by the Senate, as presently directors are.

Senator BREAUX. For a fixed term?

Ms. LACY. For fixed, staggered terms. We have recommended that five of the board members be from TVA's service area, and we have recommended, as the Governor has indicated, that they represent a fairly broad cross section of expertise which could include academia, constituents, consumers, and so forth.

While we have done this in a very general manner, obviously, this is something that could be developed more specifically in legislation.

Senator BREAUX. How would the chief executive officer be chosen?

Ms. LACY. He would be hired by the board of directors.

Senator BREAUX. For a fixed term or to serve at the pleasure of the board?

Ms. LACY. We did not have a specific recommendation, although the sense of the committee, I believe, is that it would be at the pleasure of the board as it is in most private corporations.

Senator BREAUX. You talk about, in addition to the CEO, creating some senior staff positions to be responsible for developing the long-range plans for capital construction, rates and demand forecasts, and plans for adequate financial management. Would this be the level that the rates would be discussed and developed? Would

this senior staff be the ones looking at rate recommendations and making that recommendation to the board?

Ms. LACY. The staff of TVA, of course, would be involved in the rate process just as they are involved in a private corporation. The financial officer as well as any operations officer work together to establish the needed criteria for setting the rates.

However, as we envision it, a hearing would be conducted on what you might call staff's proposal, and that would actually be conducted by an administrative law judge. Then that recommendation would go up, but the senior staff would, of course, be involved as would many staff in developing the proposed rate structure for the ensuing time period.

Senator BREAUX. Any kind of review by any outside group with regard to rates?

Ms. LACY. No. The committee considered possible review by courts as most State rates can be reviewed or by the Federal Energy Regulatory Commission, a possibility of a regional review body. All of these were rejected for a number of reasons.

One of the primary reasons was that the committee felt that establishing a very open and perhaps in a way traditional rate hearing procedure which allowed for a structured way of introduction of expert testimony, cross examination, recorded hearings, written decisions and a more public consideration for the proposed rates would afford the review and accountability which is felt to be lacking by many of the constituents of TVA's power production now.

We also felt that the appeal process either through the judicial road or through the Federal Energy Regulatory Commission would be an unnecessary burden at this time, another layer that would delay decisions. Of course, regulatory lag is often something that poses significant problems for the power producers.

Senator BREAUX. What is your opinion of this recommendation's greater acceptability or why is it a better recommendation than the existing structure with regard to rates? Or do you feel there is a difference?

Ms. LACY. I think that the TVA has what they call rate hearings now, and I would not want this committee to get the impression that we feel that TVA makes its rates in a vacuum or in darkness. They certainly do not.

However, it is more along the lines of a public discussion or hearing without the extensive availability for cross examination that most or all investor-owned utilities and their customers are used to before State public service commissions or before the Federal Energy Regulatory Commission.

It is clear that this kind of implementation of a full-blown rate hearing can be done by TVA without legislation. In fact, recent publications show that they are looking to do something like this.

However, in the advisory committee's work, we felt it was important to recommend those avenues that should be taken by TVA, not only those that need legislation but those that can be taken internally. By the Congress' or by this body's endorsement of that kind of approach, even if it is not in legislation, certainly would encourage the present structure or any future structure to establish and maintain that kind of openness which exists for other power producers.

Senator BREAUX. Thank you for that response. Let me ask you about the removal of the statutory pay cap.

What can you tell me that led to that recommendation? What is the problem that has led to the recommendation for the elimination of the statutory pay cap?

Ms. LACY. The statutory pay cap is now set at level 4, I believe, which is about $77,000. That is the upper limit at TVA.

The report contains comparisons of financial remuneration for similarly situated professionals in the power programs, particularly in the nuclear program. It is very clear that the ability to attract and retain qualified individuals of a high management level or operational experience, particularly in nuclear, is simply not available with a $77,000 cap.

Even TVA has recognized that. As a result, in their present nuclear program, Admiral White is employed under a contracting situation which, again, is not unusual. Many Federal agencies use this, but it is under that kind of situation and that kind of situation only that they can maintain the types of qualified personnel at the salaries. Many people working under a contractual arrangement earn more than $77,000 a year.

As a result, TVA does not have as much control over their personnel nor are they directly paid by TVA, and they probably are paying more than they need to because of the contractual situation.

Mr. BALILES. Senator, good nuclear managers today are in demand, and TVA's inability to attract and retain those individuals means that they simply won't get them.

The report will reflect that the salaries paid to chief executives and other high ranking officials with private utilities are being paid three to eight times the maximum salary that can be paid to TVA officials. The salaries of senior nuclear executives range from more than twice to more than three times the TVA maximum.

So, it is ironic that in the Depression era, economic conditions and the enthusiasm engendered by the creation of TVA brought the best in the country to that area. Now, that simply doesn't exist.

Senator BREAUX. That is what I want to know. What kind of a comparison did you find to the private sector with regard to pay scales, and you say it goes from three to eight times higher.

Mr. BALILES. Three to eight times the maximum salary.

Senator BREAUX. What about the last recommendation which is easy to spell out in one sentence, but it covers an awful lot of area in your statement. The committee is recommending the creation of a formal rate review process, standard and routine audit procedures and independent audit personnel, annual board review of construction and operation plans, and annual business plan.

Now, is this recommendation looking at something outside of the TVA structure when you talk about independent audits and reviews of decisions, apparently, of the board and the chief executive officer, or is this something that you are recommending be part of TVA's actual procedures internally?

Ms. LACY. The majority of that recommendation refers to internal procedures. The external audit refers to the normal financial audit that generally Big Eight accounting firms do of private institutions. In fact, I believe Coopers and Lybrand is their accounting

firm that does an annual audit, and we certainly would recommend that type of accounting audit be performed by an independent auditing firm.

The remaining recommendations contained in that sentence really do refer to structures and procedures that would be put in place internally in TVA with review of the various things like the business plan and construction plan by the part-time board of directors.

But those would be functions which generally are assigned to one or more divisions within any corporation, whether it is your financial office, your operations office, and it would also include the non-power program.

Now, our report did not focus on the non-power program of TVA. That is a very important program and would also be under the jurisdiction and consideration of the board of directors.

Senator BREAUX. Do you find that these types of procedures are not there now, in your opinion?

Ms. LACY. The activities of our committee extended over approximately a year. We began about a year ago. During that time, some of the things that we are recommending here have been discussed and perhaps put in place by TVA, and we really applaud TVA for that. We believe there are some areas where it can be strengthened and formalized and improved upon, but as I said, Coopers and Lybrand does do an external audit of TVA, so that has been in place for a number of years.

We think that these things can, as I said, be improved on, and their total functioning will be smoother and more accountable with the expanded board of directors and the CEO which would be created by statute and with the change in the pay cap.

Senator BREAUX. I want to thank both of you. I have a follow-up question, but I want to recognize the distinguished Senator from Virginia for any questions he may have.

Senator WARNER. Thank you, Mr. Chairman.

I apologize to my distinguished chief executive for being a bit tardy, but some of us are caught up in this summitry here, and I seem to be in the middle of it since I serve on the Armed Services and the Intelligence Committees.

Governor, I commend you, as I have before, again for this particular report that you and Judge Lacy have put together and brought to the attention of the Congress. It is particularly timely, because this committee, and eventually the Senate as a whole, will be soon passing on the President's nominee for the board, Mr. Runyan, and I have on two occasions brought to his attention your report.

Most recently, I had a visit with him in my office, and I gave him a copy. He was about to get on an airplane to fly to Japan. He said he had read it once, and I suggested he read it again, because it incorporates, I think, very constructive recommendations about the improvement of this energy facility which Virginia is highly dependent on in terms of its economic infrastructure and power base and, indeed, many other States.

So, we are indebted to you here in the Senate and, indeed, across the eastern part of the United States for your constructive work on

this, and I hope you understand my apologies for not being here throughout your testimony.

Mr. BALILES. Senator, thank you very much, not only for your comments and compliments but for your leadership as well. As you know, TVA service is just a very small portion of our commonwealth, just a very few counties, in fact, but they are the very counties in our State that have the high unemployment problem, and our ability to attract new growth to that area, to bring industries and to create the employment depends upon a dependable, reliable supply of electricity, not just today but tomorrow and in the future.

For those of us who have on the leash some economic prospects—and they are highly intensive users of electricity—they need to know something about the reliability and the dependability of power. The fact is that of the 17 nuclear units that were originally planned, 8 have been canceled at a loss of $4 billion, 5 have been completed but are not operational, and four are under construction. Those nuclear units, as I mentioned earlier, cost about $15 billion and represent two-thirds of their total assets.

We think the structural changes and the management improvements that can be made here can significantly improve the reliability and dependability of nuclear power and TVA power in the future.

Senator WARNER. Thank you.

Senator BREAUX. I thank Senator Warner. I know the Senator has just been designated as one of the detail reviewers of the proposed treaty, and he is going to be very tied up with that, but we thank him for being able to be with us.

Senator WARNER. I am glad to do that, Mr. Chairman. I am glad we have a chief executive in Virginia who can, during the INF period, handle some of my responsibilities.

Senator BREAUX. As to the recommendations that are going to be considered by the Congress and are already being considered by the House, you have to consider the political acceptability of those recommendations. What kinds of reactions has your report received from different areas outside of the Congress that have reviewed the recommendations of your committee?

Mr. BALILES. Senator, the responses have been almost uniformly approving in nature. We have had questions, but I think we have been able to respond to those inquiries.

In fact, I think public acceptance of these proposals within the TVA service area can be expected to be very favorable for this reason: we think and the advisory committee of these experts concluded that rates will continue to go up in that area for a lot of reasons that are outlined in the report.

Today, TVA, with its three members—only two now—can make those decisions. They do invite public response, but if you take the management structure that we are proposing, a board that sets the policy and a chief executive who implements the policy and the board says these are the policy guidelines for finance, for construction, for power production, or for personnel, and the CEO has the responsibility for carrying it out, I think things will work much more efficiently and much more in the tradition of the modern corporate model in this country.

However, the rate process is where I think public opinion will be overwhelmingly in favor, because if the board sets out the policy for rates and says these are the parameters within which you are to operate and the staff and the CEO says together we need a rate increase, they prepare their case. They take it out for public hearing. The public is invited to comment. Examination and cross examination can be conducted of the case being offered by the staff.

The administrative law judge or the hearing officer then makes a recommendation to the board, and the board is the policy maker. They decide in that rate making function it shall be increased by a certain percentage, and the public, I think, will feel it has had an opportunity to participate and to make its views known.

That is where I think you are going to get public opinion overwhelmingly in favor of this approach.

Senator WARNER. Mr. Chairman?

Senator BREAUX. Senator Warner.

Senator WARNER. When I spoke to Mr. Runyan, he said he had had an opportunity—I think at a conference where the two of you were present—to have some preliminary discussions with you. I was rather impressed that he brings to this position, if confirmed by the Senate, extensive management skills. Perhaps he doesn't have as much specific knowledge about the power industry, particularly the nuclear phases, but he has management skills.

I think in your response now you stress the importance that management skills will have in the rescue of this energy source.

Mr. BALILES. Senator, I think you need a strong executive in here who has the management skills and the knowledge to make this system work, and he operates within the guidelines established by a policy making board.

Senator WARNER. Did you have an opportunity to talk with Mr. Runyan?

Mr. BALILES. Yes.

Senator WARNER. Good. Thank you.

Senator BREAUX. Would there be any potential remedy for the rate payers. If the President, whoever our President would be, appoints the board members for fixed terms, and they make the decision on rates based on input from a public hearing, under your recommendation, if they were to make a decision on a rate case that would be unacceptable to a majority of the people that they serve, was there any envisioned remedy or appeal recommended in your committee recommendations?

Ms. LACY. No, Senator, we did not recommend a judicial review or a Federal Energy Regulatory Commission type of review.

Of course, there is the political remedy that is what exists with TVA right now which is that we are recommending staggered terms, and there would be the replacement of members of the board at staggered intervals so that you would have a turnover. But we did not recommend an actual appeal from a rate decision.

If I might, too, you had asked what the response to our report was, and I think it may be of interest to you to know that one of our committee members, Alex Radin, has also undertaken a report and published a report which recommended very similar types of management changes. That report has now been endorsed by the

five largest municipals in the TVA region, and it includes an expanded board, the same type of thing we are talking about.

Additionally, the Tennessee Valley Industrial Council, users of TVA electricity, has reviewed this report. I am not aware that they have taken a formal stand on it. However, we have received very favorable comments from members of that group as well as from public utility commissioners in all the affected States.

They do not regulate TVA, but, of course, what is happening with TVA has a very big impact on the energy situation in the investor-owned utilities and public power entities in those States. The public utility commissioners of the Southern States region that is served by TVA, while not formally endorsing or not endorsing, have also commented very favorably on the particular report, and the Administration has expressed agreement with many of the recommendations that we have.

Senator BREAUX. Well, Judge Lacy and Governor Baliles, I want to thank you on behalf of our committee for producing a document that is going to be the subject of a great deal of discussion and interest in the Congress. It certainly represents a starting point for us to consider the development of legislation. It is a solid recommendation.

I am not saying that I or the committee members endorse the recommendations, but I think that we recognize the great deal of work and time and effort that you have put into this to make these recommendations. I assure you that it will be given the consideration that it deserves, and we will make an effort to try to see if we can't use it as the basis for some positive recommendations for TVA.

We thank you for being here.

Ms. LACY. Thank you, Senator.

Mr. BALILES. Thank you.

Senator BREAUX. I would like to welcome up next a panel consisting of Mr. Charles Dean, chairman of the Tennessee Valley Authority; Mr. John Waters, director of the Tennessee Valley Authority, who is accompanied by Mr. William Willis who is the general manager of the TVA.

Gentlemen, we are very pleased to have you here. We have a copy of your statement. We would be pleased to receive it and then proceed to some questions that I have for you all.

Mr. DEAN. With your permission, Mr. Chairman, I will just emphasize part of my statement and submit the rest for the record. There are a few things that I think are worth emphasis and might lead to some further questions.

STATEMENT OF CHARLES H. DEAN, JR., CHAIRMAN, TENNESSEE VALLEY AUTHORITY; ACCOMPANIED BY JOHN B. WATERS, DIRECTOR, TENNESSEE VALLEY AUTHORITY; AND WILLIAM F. WILLIS, GENERAL MANAGER, TENNESSEE VALLEY AUTHORITY

Mr. DEAN. We certainly appreciate the opportunity to testify today on the findings and recommendations of the Southern States Energy Board regarding TVA.

Some of the study's significant findings parallel our own concerns. In particular, the report underscores one of the principal

problems we face as an organization which is TVA's inability to pay market rate salaries that can attract and retain top level managers in highly competitive, technical fields.

Let me mention some other important areas of agreement. Several relate to the report's recommendations on internal organization.

We certainly do agree as to the need to establish the general manager as TVA's chief operating officer, and this has been done. As Judge Lacy said, we had implemented some of the recommendations even before the report had been completely finished.

We have also created the position of chief financial officer at the level of assistant general manager which is a very high level within our organization.

In 1986, before the commission was even started, we created an Office of Inspector General that reports directly to the board. Through its audit functions and investigations of waste, fraud, and abuse, that office already has saved TVA millions of dollars.

Other SSEB recommendations relate to TVA's nuclear program. We have taken significant steps to bring our nuclear power system back on line and to keep it operating safety and reliably.

In January of 1986, almost two years ago, we contracted for the services of retired Admiral Steven White to head TVA's nuclear recovery efforts. Under his leadership, TVA is correcting both technical and management problems.

In addition to our nuclear program, the SSEB report also focuses on TVA's coal-fired and hydro plants. These units are the backbone of our power system, and they are performing so well that they are breaking their own records for peak performance. Our residential rates are still among the lowest in the country, and we are offering new power pricing options to make sure that our industrial customers' rates stay competitive.

Nevertheless, we are managing with one hand tied behind our backs, because the Federal pay cap is a constant threat to recruiting and retaining experienced, top-level managers—the essential human resources we need to remain competitive.

The SSEB advisory committee reported that salaries paid to key power program executives at other utilities, many of them far smaller than TVA, are three to eight times the maximum salary at TVA. As board members, we have never asked for raises for ourselves but only for permission to pay some key executives more than we make, and we have been asking for this ever since I have been here which is over six years.

As a public utility, we are unique because we are also a Federal agency. We are aware of no other public or private utility that operates commercial, power-producing nuclear plants which must contend with such pay restrictions.

This artificial limitation does not recognize the savings that can result from good management or the fact that money for TVA's power program comes from the TVA power consumers rather than the nation's taxpayers.

No amount of organizational adjustment will solve the pay cap problem, because it is not an organizational problem that can be corrected internally. We have asked Congress to help solve this problem. This help has not been forthcoming, and we have paid a heavy price.

Because the pay cap prevents TVA from paying market salaries necessary to retain career managers of that caliber as regular employees, TVA ends up paying premium contract fees to gain access to the services of experienced nuclear managers.

The pay cap robs us of the corporate independence and flexibility of management action that TVA's founders envisioned. Every outside organization that has examined TVA over the past few years has come to the same conclusion: TVA must have relief from the Federal pay cap if it is to carry out its mission.

The SSEB also hits the mark in a number of other areas, and I will mention a few.

One of those areas is the economic justification of our nuclear restoration and construction plans. We conducted such a study and published the report last summer, and we are reassessing this report regularly because the numbers continue to change. The study supports our current plan.

Another item is a provision for the retirement of additional debt as soon as the nuclear restoration program is clarified. We will certainly consider the use of surplus funds to retire our debt as such funds become available or, at the very least, use funds generated internally for construction and cease borrowing.

Another item is improvement in the performance of our large coal-fired units. Some of them could be improved if we decide to rebuild them and keep them in service indefinitely. That will depend on how many nuclear plants we can get on line and what our load growth is.

In addition, we are working toward the successful transfer of responsibilities for operation of our nuclear units to permanent TVA staff. The office of nuclear power has established management training programs to prepare TVA managers to take control of the program when contract personnel are phased out. However, we may continue to need some contract managers in key spots as long as pay cap relief is not forthcoming.

With regard to recommendations concerning our general structure and organization, we are looking at all the alternatives.

I would conclude by thanking the SSEB advisory committee for the time and effort—which was considerable—that they put forth in preparing this study. The report is concerned primarily with the operation of the power system.

We would like to point out that TVA is judged also on its ability to contribute to the quality of life in the region it serves by engaging in activities that benefit the entire nation. For example, TVA fertilizer research has led to products that produce most of the food consumed in the world today.

Our leadership in the production of a fluidized bed coal-burning plant which we are building now with Duke Power and some other companies in Kentucky will lead to a revolution in the use of coal and cleaner air for everybody in the whole country.

Any organization of our size and complexity must examine itself for performance and be open to constructive observations of other people. This introspection is what separates organizations which can grow and prosper through change from those that cannot.

TVA has demonstrated time and time again that it can change. It can tackle problems of immense dimensions, and it can succeed.

We welcome the deliberation of this committee and the insights of its members.

Thank you, sir.

Senator BREAUX. Thank you, Chairman Dean.

Let me start by talking about the salary cap. It seems you have emphasized that as a problem throughout your statement. Can you tell us how many employees have job classifications that you would consider below comparable wages in the private sector?

Mr. DEAN. Out of over 30,000 employees, there would be fewer than 50 jobs that would be affected if we were relieved from the pay cap.

Senator BREAUX. How much would that run, do you think, in order to bring them up to what you would consider to be comparable pay?

Mr. DEAN. At this point in time, it would be less than $1 million in additional monies per year.

Senator BREAUX. In addition to Mr. White, what other employees have you had to seek out through premium contracting?

Mr. DEAN. The very top jobs in the nuclear program have been, in recent years, in the hands of contract managers. There have just been a few of those. We have a lot of so-called advisors that are also highly paid people who are not TVA employees.

The actual contract managers involved, for example, Mr. White who is the manager of nuclear power, and two of our three site directors—these are the people who oversee the entire site at the nuclear plants—are contract managers. Then we have key people in quality assurance, licensing and a few other places.

We probably have fewer than 10 contract managers, but we have in addition to that a large group of what we call advisors who sit at the side of TVA people and try to steer them in the proper course. Some of those people draw well over $100 an hour.

Senator BREAUX. If the pay cap were removed, I guess you would be able to correspondingly reduce the number of contract employees that would be needed?

Mr. DEAN. Oh, yes, sir. That is the idea. These people need to be TVA people. Having contract managers has helped us in many ways, but it is not a satisfactory solution because these managers are not really TVA people. Most of them are there on a relatively temporary basis.

When you have young people working up through your organization, they need to be able to see the job at the top as something they can shoot at. You can see that. You have seen that in organizations that you have dealt with, I am sure.

Another difficulty is that we get into very difficult, tricky conflict of interest problems if we hire a contract manager who has worked for some architecture-engineering firm. If those people are working on our property, we have to go to great lengths to make sure the contract manager doesn't supervise people from his former company. That is a very complex matter which we would like to simplify.

Senator BREAUX. You had indicated on in your statement that Mr. Willis was brought on as TVA's chief operating officer. Is that the title that you have, Mr. Willis?

Mr. WILLIS. I have been general manager for 8 years. This past April, the board designated me as chief operating officer and held me more accountable for the day-to-day functions.

Senator BREAUX. You heard the recommendations of Governor Baliles and Judge Lacy in their testimony. Can you tell me how your position follows their recommendations for what they envision the chief executive officer to be responsible for and how it would differ?

Mr. WILLIS. I think I can. I will try to, Senator.

The recommendation is to have a part-time board and a chief executive officer. Today, in essence, the three-man board of directors, in addition to being the board, serves in a collegial sense as the chief executive officer for the agency. Then I serve as the chief operating officer.

With the new concept—without a full-time board and with only one chief executive officer, my role as general manager or chief operating officer would have to change somewhat, and I am not sure how they envision that happening.

Senator BREAUX. It would obviously be an expansion of your activities, I would think.

Can you tell me how their recommendation with regard to rate making procedures differs from the current procedures of the TVA?

Mr. DEAN. They envision a more formal procedure. My personal feeling is—and Mr. Waters can comment on it—that the procedures we have now, considering what we are dealing with, are pretty good. Office of Power representatives come publicly to the board in July of every year. Our fiscal year starts October 1. They report on how much coal we are going to buy next year, how much labor we have to have, what our interest charges are going to be, and all the things that make up the power rate.

They present that to us publicly in July. Then we have a month for public comment. We have public meetings and we take comments in writing from anyone who wants to make them, whether they live in our service area or not.

We set a rate based on the information that the Office of Power give us and tempered by relevant public comments.

Now, the reason that is not so bad, Senator, is the fact that we are not like Judge Lacy. We don't have to weigh the needs of the stockholders and the ratepayers. We are only setting rates to cover our costs, so we are only dealing with ratepayers, and bond holders. We do have definite covenants in our bonds that we have to adhere to. In other words, bondholders have every right to expect us to be financially prudent and to cover our costs.

There is no reason to set rates any higher than necessary to do that job. So, we might do a better job. We might have more hearings which may produce more comment. But as far as formalizing it any more than it is now, I can't see that it would produce any significant benefit.

Senator BREAUX. Mr. Willis?

Mr. WILLIS. The key difference in the way we do business now and the way they are suggesting would be the addition of an administrative law judge to run these hearings and open them for cross examination, which is not the case today.

Mr. DEAN. You see, the way to cut rates in a utility like ours is to cut spending. The big spending we are doing now is for the nuclear plants. We are borrowing $1 billion this year, and almost every bit of that will go into these nuclear plants.

John Waters and I never ordered a nuclear plant. They were already pretty well ordered by the time we got there. In fact, we have cancelled eight reactors, as was pointed out earlier.

You play with the cards you are dealt. In this case, our hand has been dealt. We are playing stud poker, not draw, and we can't throw them back in and start over. So, a lot of our costs are pretty much pre-determined, regardless of who runs TVA.

Senator BREAUX. So, I guess the major difference would be the fact that Governor Baliles is recommending a formal hearing with an administrative law judge with the right to cross examine people who present facts and to make sure they verify those. That does not occur at the present time.

Neither the recommendation nor the existing structure allows for any appeal of the rates once they are made. I don't think they are recommending that and you don't have that now.

Mr. WILLIS. We are lucky we have a lawyer on the board. He may want to comment on that.

Senator BREAUX. Mr. Waters, any comment?

Mr. WATERS. No, I think you are correct, Mr. Chairman. The only other factor that Chairman Dean did not mention that I would call your attention to is we are a wholesaler of electric power. We operate through 160 distributors, and we have about 50 directly served customers, very big customers who couldn't effectively go through a distributor.

Most of those groups have very fine organizations, and they are in on the rate setting mechanism from day one.

Senator BREAUX. Your customers who distribute power to consumer, residential or otherwise, would be generally subject to a rate making procedure through a public service commission type of procedure?

Mr. WATERS. That is right. They are in on it working with our staff. The staffs almost work hand-in-hand year-round, really, so they always understand where we are going and what our figures are showing. They don't hesitate to point out anything that they might calculate differently, and we work with them.

You know, I would like to just point out, Senator, that this criticism of TVA is a result of its nuclear power program. The rest of TVA's activities have really been subject to very little criticism.

The nuclear power industry has had a great deal of problems. The mistakes TVA made were basically made also by investor-owned utilities which had exactly the same kind of structure that the Baliles report urges on TVA.

So, I am not sure that a restructuring of the board would prevent any mistakes being made. Indeed, the evidence is that perhaps it wouldn't.

The bottom line is simply this: TVA's nuclear power system is being fixed. The technical problems are being addressed. We are going to have a safe and efficient operation. I am not sure we can operate that power system safely unless we are able to pay the going rate for a small number of senior nuclear power managers.

That is of great concern to me. I think that concern will exist no matter how many board members there are or how few board members there are.

Senator BREAUX. Well, I agree that there are plenty of mistakes out there made by utilities. I know Monday morning quarterbacking is a wonderful thing. The magnitude of TVA coverage, 40,000 square miles, could be a big mistake, especially if you look at the fact that all these units are down, then the magnitude of coverage is even larger.

You had indicated, Mr. Dean, in your statement about the creation of the Office of Inspector General, and that you have done that, and that you have already saved, I think, millions as a result of that office's being created. Can you give us some examples of some of the things that the Office of Inspector General has done that has produced some of the savings?

Mr. DEAN. I can give you one off the top of my head, Senator, and we will supply some more for the record.

The other day, they were investigating the records of one of our large coal suppliers and found that there were some mistakes made in calculations and some things thrown in that probably shouldn't have been. In that one instance, the IG's office identified about a million dollars due to the agency.

That comes to mind because it just happened the other day. Unfortunately, they found some of our employees allegedly had been playing games with expense accounts. That hasn't been completely verified.

The IG's office has an investigative unit and an internal auditing unit. Then, of course, we also have Coopers and Lybrand. We always have a Big Eight external auditor, and we have had for years.

TVA's Inspector General is Norm Zigrossi, who was the agent in charge of the FBI field office here in Washington before he came to Knoxville. We were very fortunate in getting a man of his ability.

Senator BREAUX. Did the board hire him?

Mr. DEAN. Yes, sir. We hired him.

Senator BREAUX. I take it from your statement that he has authority to investigate external activities and groups and companies that TVA does business with as well as the authority to investigate internal potential wrong doing by TVA employees.

Mr. DEAN. Yes, sir. That is correct. And the IG staff members are very professional. They report to us and to the Congress.

Senator BREAUX. On page 3 of your statement, you indicated that TVA in July of this year had conducted a study of the economic justification for the nuclear power restoration and restarting of the plants. Could you give us a copy of that? I think it would be helpful for us to see that. Can you supply the committee with a copy of that report?

Mr. DEAN. Yes, sir. [See p. 45.]

Senator BREAUX. Could you briefly outline for us now what that report indicates?

Mr. DEAN. The report indicates that we shall proceed to getting three units on line, two at Sequoyah nuclear plant and one at Brown's Ferry, as quickly as we possibly can. I would like to think

that will all be done during calendar year 1988. Those are the indications at this point.

Two other units at Brown's Ferry nuclear plant that will be brought along at a slower rate, but that rate has been pretty much predetermined. It has to do with how fast you can get the work done and how much money you want to put into them.

Then there are two more units at Watt's Bar nuclear power plant that have to be completely gone over so that we can get licenses on them. We expected to license them in 1985, but it looks like it is going to be more like 1990.

Bellefonte nuclear plant in north Alabama. Looks nearly finished, but there is considerable work to be done there. We are looking to complete that plant in the mid-1990's.

We have to gauge the money we put into those plants against the need for the power and the load growth on the system. It needs to be constantly reviewed. The board has asked the general manager to conduct another review this spring and have outsiders who have no vested interest to come in and look at all those numbers and give us their opinion. There are no decisions facing the board that involve more money, really, than the proper speed with which to bring those plants along.

Senator BREAUX. So, you all have made a decision on the reconstruction and restart of the plants? You have something in place that says we will follow this schedule?

Mr. DEAN. We have a program which, of course, can be modified. But we have a program which says when these units are needed and how much money we can afford to spend to bring them on at certain times.

Senator BREAUX. Let me ask you, then, about the report of Governor Baliles. The report indicates to me that they feel that if you pursued your current schedule for the nuclear units in the system that have not been abandoned, they say that TVA will carry large excess reserves probably through the end of this century. Between 1990 and 1995, reserve margins would range from 35 percent to 41 percent compared with the reserve margin of 15 to 25 percent that is usually considered necessary.

Do you agree with that finding or have any comments about what they are saying?

Mr. DEAN. It is not all that difficult to look ahead five years in the power business. But when you start looking ahead ten and fifteen years, there are many variables. For example, plenty of power is available in the Southeast now at pretty good prices. A lot of it is from the companies to the north of us that have a lot of coal-fired units, and they have plenty of power.

If changes are made, for instance, in acid rain legislation, some of those plants may be much more expensive to operate or they may be modified or shut down. If we have a shortage of petroleum which wouldn't really surprise anybody who studies the energy situation, we may find an increased demand for electricity which would dry up the excess power in the South.

I guess I am saying it is indeterminate, sir.

Senator BREAUX. I guess you are saying, with regard to their projections between 1990 and 1995, it is speculative and nothing is locked in concrete.

Do you have the potential to change or modify your plants for restart and reconstruction if conditions were to be changed down the line?

Mr. DEAN. Yes, sir. There is flexibility in those plans, and the rates at which you spend money on those different reactors.

Senator BREAUX. You had said on the last page of your report you talked about some areas of disagreement that you still have with Governor Baliles' report. Could you summarize those disagreement areas that you have with the report as far as what their recommendations are?

Mr. WILLIS. Well, I will get away from the structure of the board and look at other areas. We are generally in agreement with the major recommendations. We have some problems with the way that they would organize us internally and establish rates. We think these procedures are working very well now.

We had some very considerable difference of opinion with their report on our coal-fired system, and we lodged those reports. We would be glad to provide those for the record for you.

Senator BREAUX. We would like that. [See p. 61.]

Mr. WILLIS. We feel very proud of our coal-fired system. It is on average made up of units that are about 25 years old. We had deliberately made some decisions a few years back not to spend a tremendous amount of dollars on the life extension of those plants. We had expected that our nuclear program would be running and that we would be shutting down and mothballing some of the coal plants.

In hindsight, since the nuclear units didn't come on or we had to shut them down, a little more investment and a little more reliability and availability of those plants would have been fine today. But we don't think they took into consideration all of the realities that went into our decisionmaking with the coal system.

We are very proud of our coal system, which is rated among the top five in the country. We indeed have the most efficient plant in the country in TVA.

So, we took some exception to the SSEB report's characterization of our coal-fired system.

However, other than the administrative law judge concept and a few internal procedures of how we would organize, we generally embrace their report.

Senator BREAUX. Not on the board recommendations, though.

Mr. WILLIS. Well, there is a difference of opinion on that.

Senator BREAUX. You differ from their recommendations on the board? I know we are talking about your own jobs here, but somebody has to respond.

Mr. DEAN. It is a matter of record, Senator. Yesterday, we testified over on the House side about this. I said that if the act is going to be opened up, I tend to like the recommendations Frederick Smith and his subcommittee made in calling for a larger board and a single CEO. Mr. Waters feels we are just as well off with what we have. Maybe he would like to say it differently, but that is how I see it.

[Materials to be supplied follow:]

Senator BREAUX. OK, thank you.

We have statements for the record that I would insert at this time from Richard Freeman who is the former director of TVA and Representative Marilyn Lloyd.

We also have a statement from Senator Shelby which we will be making part of the record.

I want to thank the members who have testified on this panel for your help. This is just the beginning of an effort to try to work with TVA to try to improve it. There is always room for improvement. I think you have indicated that today, and we want to make sure that whatever the final product is is one that works. There is no sense in doing things just for the sake of doing them unless we make some improvements. That is certainly going to be the thing that guides this Senator in that endeavor.

So, we thank you very much for being with us today.

That will conclude our witnesses for today, and the subcommittee will stand in adjournment until further call of the Chair.

[Whereupon, at 10:48 a.m., the subcommittee adjourned, to reconvene subject to the call of the Chair.]

[Statements submitted for the record follow:]

DATE: DECEMBER 9, 1987

TESTIMONY BY SENATOR RICHARD C. SHELBY

BEFORE THE SUBCOMMITTEE ON NUCLEAR REGULATION

OF THE SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

MR. CHAIRMAN, I WOULD LIKE TO THANK YOU FOR THE OPPORTUNITY TO EXPRESS SOME OF MY CONCERNS AND HOPES FOR THE TENNESSEE VALLEY AUTHORITY (TVA). AS A MEMBER OF THE TVA DELEGATION, I HAVE AN AVID AND GENUINE INTEREST IN THE FUTURE COURSE AND STABILITY OF THE ORGANIZATION. MOREOVER, I AM STRONGLY DEDICATED AND MOTIVATED TO ASSISTING THE TVA IN FULFILLING ITS COMMITMENT TO THE MANY PERSONS SERVED BY THE ORGANIZATION.

THE TVA HAS AN IMPRESSIVE HISTORY. IT HAS BEEN PRAISED AS THE "GREATEST SINGLE AMERICAN INVENTION OF THIS CENTURY." REPRESENTATIVE LISTER HILL OF MY STATE OF ALABAMA, AMONG OTHER FORWARD-THINKING INDIVIDUALS OF THAT TIME, WORKED TOWARD THE CREATION OF A DEVELOPMENT CORPORATION THAT WOULD HARNESS THE ENERGY OF THE TENNESSEE RIVER AND PROVIDE THE STIMULATION NECESSARY FOR GROWTH AND PROSPERITY.

1933 MARKS THE MANIFESTATION OF AN IDEA THAT HAS BENEFITED THOUSANDS OF FAMILIES RESIDING WITHIN THE TVA AREA. AS A CITIZEN OF THE TVA AREA, I AM COMMITTED TO THE TVA CONCEPT AND AM WILLING TO WORK TOWARD FRUITION OF THE GOALS I KNOW TVA IS CAPABLE OF ACHIEVING.

WITH GREAT INTEREST I READ THE REPORT PREPARED BY THE ADVISORY COMMITTEE ON THE TENNESSEE VALLEY AUTHORITY UNDER THE AUSPICES OF THE SOUTHERN STATES ENERGY BOARD (SSEB). ADDITIONALLY, I HAVE READ THE "OPTIONS PAPER ON TVA'S STRUCTURE AND ORGANIZATION" PREPARED BY MR. WILLIAM F. WILLIS, GENERAL MANAGER OF TVA. FURTHERMORE, I HAVE TALKED WITH MY CONSTITUENTS WHO ARE DIRECTLY AFFECTED BY ACTIONS TAKEN BY THE TVA. THEY ARE CONCERNED WITH SOME OF THE RECENT ACTIONS OF THE TVA. MANY ARE SMALL FARMERS WHO ARE FEARFUL OF RESULTANT ECONOMIC DAMAGE BECAUSE OF THOSE ACTIONS. THEIR CONCERNS MUST BE ADDRESSED.

I THINK IT IS SAFE TO ARGUE THAT MANY OF THE PROBLEMS THAT THE TVA IS EXPERIENCING HAS BEEN PRECIPITATED BY CURRENT STRUCTURAL FLAWS IN MANAGEMENT. THIS IS EVIDENCED NOT ONLY BY THE SSEB REPORT, BUT ALSO BY THE TVA'S "OPTION PAPER." ONE OF THE FLAWS SPECIFIED IN THE SSEB REPORT IS THAT THE PRESENT LEADERSHIP STRUCTURE "FOSTERS INSULARITY AND LIMITED EXPOSURE TO EXTERNAL VIEWPOINTS." THE "OPTIONS PAPER' STATES IN PART THAT:

"THE FACT OF FIVE LICENSED GENERATING UNITS SHUT DOWN IN 1985 BECAUSE OF VARIOUS SAFETY AND MANAGEMENT DEFICIENCIES DIRECTLY AFFECTS THE FINANCIAL HEALTH OF TVA'S ELECTRIC SYSTEM, THE COMPETITIVENESS OF TVA'S RATES, THE ADEQUACY OF TVA'S POWER SUPPLY, AND, OF GREAT IMPORTANCE, TVA'S PREVIOUS REPUTATION AS AN INDUSTRY LEADER IN THE CONSTRUCTION AND OPERATION OF NUCLEAR GENERATING STATIONS."

UNFORTUNATELY, THE DEFICIENCIES WITHIN MANAGEMENT IS THE TREE FROM WHICH PROBLEMS WITH NUCLEAR SAFETY AND FINANCIAL PLANNING STEM. ADDITIONALLY, THERE IS DIFFICULTY WITH ATTRACTING AND KEEPING TOP QUALITY STAFF AT CERTAIN LEVELS. THIS HANDICAP COUPLED WITH THE "FRUIT OF THE POISONOUS TREE" LEADS TO INEFFECTIVE OPERATIONS AND PLACES AN INCREASED BURDEN ON THE CITIZENS OF THE TVA AREA.

HOWEVER, I THINK IT IS IMPORTANT TO NOTE THAT TVA IS WORKING TOWARD REMOVING SOME OF THE OBSTACLES IT IS FACING. THIS IS DEFINITELY A STEP IN THE RIGHT DIRECTION. THE MANAGEMENT MUST BE COMMENDED. HOPEFULLY THESE STEPS WILL CONTINUE AND THE TVA WILL AGAIN BE IN THE FORE OF ELECTRIC UTILITIES AND A ROLE MODEL ALL OVER THE WORLD.

BECAUSE I AM GENUINELY INTERESTED IN THE WELL-BEING AND VIABILITY OF THE TENNESSEE VALLEY AUTHORITY, I HAVE INTRODUCED LEGISLATION TO REMEDY THE MAJOR PROBLEM FACING THE ORGANIZATION.

STUDY AFTER STUDY OF THE TVA HAS INDICATED THAT SOONER OR LATER THE TVA'S MANAGEMENT STRUCTURE MUST BE CHANGED IF TVA IS TO PROGRESS INTO THE FUTURE. THEREFORE, ON MAY 28, 1987, I INTRODUCED LEGISLATION, S. 1286, TO AMEND THE TENNESSEE VALLEY AUTHORITY ACT OF 1933 AND THE INSPECTOR GENERAL ACT OF 1978. I, AND SEVERAL COLLEAGUES IN THE HOUSE WHO HAVE INTRODUCED SIMILAR LEGISLATION, BELIEVE THAT THE PROPOSED LEGISLATION (S. 1286) CAN BE THE VEHICLE TO INSURE CONTINUED PROSPERITY. IN FACT, THE SSEB REPORT ADOPTED SOME OF THE CONCEPTS ARTICULATED IN THE PROPOSED LEGISLATION AS HAS THE TVA.

IN THEORY AND PRINCIPLE, I BELIEVE THIS BILL COULD BE OF TREMENDOUS VALUE TO THE TVA AND THE PERSONS SERVED. IT IS MY FIRM BELIEF THAT THE BULK OF THE PROBLEMS THAT TVA FACE STEM DIRECTLY FROM MANAGEMENT DEFICIENCIES AND THAT THOSE DEFICIENCIES ARE THE DIRECT RESULT OF STRUCTURAL FLAWS IN THE LAW THAT GOVERNS TVA'S ORGANIZATION. IT IS TIME TO CHANGE THE LAW AND INFUSE TVA WITH A MODERN, CORPORATE STRUCTURE NECESSARY FOR FUTURE SUCCESS. BY SEPARATING THE TVA POLICY-MAKING ROLE FROM TVA MANAGEMENT, IT IS REASONABLY FORESEEABLE THAT THE EXISTING DEFICIENCIES CAN BE MINIMIZED TIMELY AND EFFICIENTLY.

HOWEVER, PRACTICAL REALITY MAY DICTATE THAT WE DO NOT ASSIST THE PERSONS SERVED BY TVA. I UNDERSTAND THERE ARE SOME WHO OPPOSE THE TVA AND IF GIVEN THE OPPORTUNITY WOULD ELIMINATE THE ORGANIZATION AS IT NOW EXISTS. OPENING THE CHARTER, THE ARGUMENT GOES, WOULD ALLOW THAT OPPORTUNITY.

THUS, FRIENDS OF THE TENNESSEE VALLEY AUTHORITY, WE ARE PLACED IN A MOST PERPLEXING QUAGMIRE. THERE IS GENERAL AGREEMENT THAT THE ORGANIZATION IS IN NEED OF REPAIR. FURTHERMORE, THERE IS GENERAL CONSENT AS TO THE APPROPRIATE WAY TO ADDRESS THE EXISTING PROBLEMS. SOME CHANGES MAY BE MADE INTERNALLY. HOWEVER, AT THE CONGRESSIONAL LEVEL, WE ARE LIMITED IN OUR ACTION BY A PERCEIVED AND ACTUAL THREAT TO THE ORGANIZATION. BY ATTEMPTING TO HELP THE ORGANIZATION, WE MAY INADVERTENTLY KILL THE ORGANIZATION.

THEREFORE, I SUBMIT TO YOU, THAT WE ARE IN NEED OF A STRONG BI-PARTISAN FRONT, REPRESENTING BOTH HOUSES OF CONGRESS, IN ORDER TO PRESERVE AND ENHANCE THE TENNESSEE VALLEY AUTHORITY. WE MUST WORK TOGETHER TO HELP THE CITIZENS OF THE TVA AREA WHO RELY, IN A REAL SENSE, ON THE TVA FOR THEIR LIVELIHOOD. FURTHER, WE MUST REMEMBER THAT THE UNDERLYING PREMISE OF THE TENNESSEE VALLEY AUTHORITY, AS EXPRESSED IN THE TVA ACT OF 1933, IS TO PROMOTE THE "ECONOMIC AND SOCIAL WELL-BEING" OF THE TENNESSEE VALLEY REGION.

MR. CHAIRMAN, I HOPE WE WILL BE SUCCESSFUL IN OUR ENDEAVOR. I MUST REITERATE THAT I AM WILLING TO WORK TO HELP THE TVA AND THE CITIZENS WHO RESIDE IN THE TVA AREA.

MR. CHAIRMAN, I WOULD LIKE TO THANK THE CHAIR FOR ALLOWING ME THE OPPORTUNITY TO VOICE MY COMMENTS AS TO THE CURRENT PICTURE OF THE TENNESSEE VALLEY AUTHORITY.

Honorable Marilyn Lloyd
U.S. House of Representatives
Statement

Subcommittee on Nuclear Regulation
Senate Committee on Environment and Public Works

December 9, 1987

First, I want to thank the Chairman for allowing me this opportunity to address the Subcommittee on a topic that is of the utmost concern to me, the Tennessee Valley Authority.

As I am sure many of you remember, I served on the Public Works Committee for many years. Currently, I serve as the Chairman of the informal Tennessee Valley Congressional Caucus comprised of those Congressmen and Senators whose constituents reside in the TVA service area. My Congressional District includes one of the highest percentages of TVA employees as well as assets. Add to these factors, my personal belief in TVA, its mission, its accomplishments, and its future, and you will understand my commitment to TVA.

Before I discuss the issue at hand I would like to comment on a related matter. The Senate Committee on Environment and Public Works will soon hold the confirmation hearing of Marvin Runyon as the new director at TVA. He is a strong, able manager, and we in the Valley delegation have high hopes for his term. I believe we are blessed to have such a positive and determined new leader at TVA, but we must use caution that we don't heap too much responsibility on his shoulders. Mr. Runyon will be inheriting a mess not of his own making. TVA will not self-correct. Mr. Runyon is going to need every tool available in order to make the agency the yardstick of the industry once again.

We have to give him the necessary tools, and I will do everything I possibly can to help.

In September of this year, Virginia Governor Gerald Baliles briefed the Caucus on the Southern States Energy Board's Advisory Committee on the Tennessee Valley Authority report. Then, in October, the Caucus held a hearing to listen to testimony from a variety of interested people concerning both the Flippo bill (H.R. 2025) and the SSEB report. Some of their comments were most enlightening.

There were two points observed in those hearings. The first was that there is not a consensus on the reorganization proposals. Some support it, some do not, and some apparently have no position. The second point was much more interesting. All those who testified wholeheartedly support increasing management salaries at TVA. I find this very significant, because these comments came from people who will have to pay for those increased salaries. If they are willing to pay for it because they recognize the need, is it fair that the Federal Government stands in the way?

The subject of TVA reorganization has received considerable attention the past few months. My esteemed colleague, Congressman Flippo, has advocated change in the management structure for a number of years now -- I am happy for him that his perseverance seems to be paying off.

Although Mr. Flippo and I have traditionally agreed on many things, I have, until now, not been able to support his bill.

81-417 0 - 88 - 3

My principal reason for not co-sponsoring his legislation was my strong belief that it would be dangerous to open the TVA Act during the current crisis in the nuclear program. I believe I can speak for the entire delegation when I say that our highest priority is to see those nuclear plants safely back on line. Our ratepayers are suffering an enormous economic burden each and every day those plants are out of operation.

But let's look at what was one of the root causes that led us to our present dilemma -- a management crisis of monstrous proportions. TVA management has themselves admitted this crisis. Without rehashing all of our problems, suffice it to say that we had a tremendous management breakdown. What we have have been trying to determine is how to prevent this from ever happening again.

Gentlemen, the status quo is definitely not acceptable. I am convinced that business as usual will be our ruination.

So what do we do? TVA's management structure was created with the agency in 1933. We all know many, many things have changed since the '30s. I believe it's time to bring TVA closer to the late 20th Century if it is going to survive into the next century.

However, there is still the question of the advisability of opening up the Act now -- the plants are still down; TVA is still very vulnerable. I have heard many arguments supporting the idea of NOT opening the Act, and I would like to discuss a few.

First, there is the matter of TVA's vulnerability. I don't see this factor eliminated until the completion of the recovery program -- which could take years. A management reorganization could go a long way toward promoting more confidence in the agency from the Nuclear Regulatory Commission's point of view. I believe it will also contribute greatly to re-establishing public confidence.

Perhaps, as some have said, we could separate policy-making from day-to-day management without legislative direction, but as I interpret the Act, this will be very difficult given the language in the law. Furthermore, without legislation, we have no guarantees that a subsequent board might revert back to the "hands on" approach. No, I believe Congress needs to be very specific about that issue.

Gov. Baliles, and indeed the entire Southern States panel, were convinced that the time for change at TVA is now. We cannot continue with business as usual and be prepared for the 21st Century. Right now, we have our window of opportunity, and we must act. And as I indicated earlier, support for these changes is gaining remarkable momentum. I intend to keep that momentum growing.

Aside from the separation of management and policy-making, Mr. Flippo's bill calls for and outlines responsibilities of a strong chief executive officer. I am totally committed to the belief that we desperately need this. I make no judgement or criticism of current staff; it is simply the top positions have evolved through a flawed system. It is Congress's responsibility to correct the flaws.

For these reasons (as well as others), I now place my full endorsement behind Mr. Flippo's bill. Although I would like to see a few changes made, they are not enough to affect my overall support. I commend my colleague for his foresight and his determination. And before this Committee, I pledge my support to bring these changes about.

My only concern regarding Mr. Flippo's bill is my conviction that it does not go far enough in its revamping of the agency; specifically, it does not, in my opinion, adequately address the Federal pay cap. For that reason, I am crafting my own legislation which I believe will complement his. I am preparing a bill to alleviate a significant problem at TVA -- the Federal pay cap.

The current compensation limit imposed on TVA for its employees has resulted in a critical lack of imaginative talent at the top levels of management -- particularly in the nuclear program. The ratepayers of the Tennessee Valley are currently supporting a small group of contract managers who earn considerably more than TVA employees. According to a GAO report, TVA is paying the managers' companies $118,000 to $250,000 annually for the loan of these key technical people. I am convinced that TVA would save a minimum of $1 million per year if simply allowed to pay a "prevailing market price" for key personnel. Savings to the agency could go as high as $2 million. TVA estimates that if the cap were lifted for key positions, the impact on its budget would be an increase of one-half to $1 million. It is important to note that these salaries would be part of the power budget, therefore NOT taxpayer dollars.

The one issue that seems to be unitedly supported by the Congressional delegation, TVA-related groups such as the Tennessee Valley Public Power Association and the Tennessee Valley Industrial Council, and even TVA itself is the pay cap issue.

TVA ranks as one of the 15 largest corporations in the United States today. It is one of the largest utilities. Yet, its salary structure is well below much smaller utilities. This discrepancy, I believe, is detrimental to the present operations and will be disastrous to the future.

There is already a precedent for exemptions from the pay cap. Title 5 of the U.S.Code, section 3104 establishes "Special Pay Provisions for 517 Scientific and Professional Positions in Federal Agencies." Unfortunately, TVA was exempted from this action. In the 98th Congress, the Extension of Federal Physicians Comparability Act of 1978 was enacted providing for more competitive salaries for V.A. doctors. There has even been an Executive Order which allowed higher salaries for professionals. In my mind, the precedence has been established.

My bill will offer reasonable checks and balances and will provide for Congressional oversight of this matter. I will outline a few key points:

-- The compensation plan would be developed after an annual survey of the prevailing salaries, benefits and incentives for similar work in private industries and utilities.

-- The Board would approve the compensation plan.

-- No salary could be established until after the survey and the compensation plan had been made available to Congress and the public for 30 days.

-- The general manager or chief executive officer would determine those salaries which fell within the pay cap restrictions.

Throughout the '80s, independent reports were recommending that TVA's salary structure needed "an overhaul." According to Robert Sansom's 1981 report for President Reagan, "Top-level executives who manage $5 billion in assets with another $12 billion in construction need to be compensated accordingly." Today, TVA's total annual budget is nearing the $7 billion mark with assets at $24 billion. In 1983, even the Grace Commission recommended that the Administration should approach Congress to increase management salaries. The Commission said, "The potential benefits in terms of increased efficiencies, safety improvements and management effectiveness are enormous."

That gives rise to yet another argument in favor of this proposal. Safety. With our vast nuclear program, we must be assured that those people overseeing that program are the best. Our nuclear plants WILL come back on line, and the people in the Tennessee Valley deserve the most talented people available to run that program. The only way to accomplish that is to pay those people the market rate. It is imperative that Congress fulfill its obligation to give TVA the tools it needs to operate efficiently, effectively, and most importantly, safely.

In the Southern States Energy Board report on TVA, several salary surveys were reviewed and compared to TVA positions. In outlining the TVA jobs, I noted 19 positions of high level management, such as managers, directors, and management positions that are considered vice presidential positions in the private sector. In 1986, those 19 positions were paid between $74,300 and $74,100. 19 people of the highest level of management and responsibility separated by $200 in annual salary. This is not only archaic -- it's obscene!

Again, in 1986, the top salary available at TVA is $74,500 for the general manager. By comparison, the 1986 compensation of CEOs at five of the biggest utilities in the nation, of which TVA could be included, are:

-- American Electric -- $563,000

-- Commonwealth Edison -- $384,000

-- Consolidated Edison -- $650,000

-- Pacific Gas and Electric -- $452,000

-- Southern California Edison -- $684,000

-- and even in our own region, Duke Power -- $402,000

A multi-billion dollar utility needs talent. TVA needs the bargaining power to attract that talent.

I believe the pay cap issue must receive immediate action. I am convinced that without this element, reorganization efforts cannot succeed. I will be talking with many of you further in the next few weeks regarding my proposal for dealing with the pay cap. I ask that you keep this issue in mind as you consider options available for TVA's future.

1986 - REMUNERATION
UTILITY COMPANIES

COMPANY	CHIEF EXECUTIVE OFFICER	($000) SALARY AND BONUSES	RANK IN INDUSTRY
Allegheny Power	Klaus Bergman	$ 271	50
American Electric	Willis S. White	$ 563	12
Atlantic City Electric	E. Douglas Huggard	$ 235	59
Baltimore Gas and Electric	Bernard C. Trueschler	$ 348	33
Boston Edison	Stephen J. Sweeney	$ 335	41
Carolina Power and Light	Sherwood H. Smith, Jr.	$ 348	40
Central and South West	Durwood Chalker	$ 469	18
Central Hudson Gas and Electric	Theodore J. Carlson	$ 121	73
Central Ill. Public Svc.	Donald G. Raymer	$ 207	64
Cincinnati Gas and Electric	J. H. Randolph	$ 192	70
Commonwealth Edison	J. J. O'Connor	$ 384	32
Consolidated Edison	A. Hauspurg	$ 650	5
Consumers Power	W. T. McCornick	$ 400	29
Delmarva Power and Light	Nevius M. Curtis	$ 279	48
Detroit Edison	W. J. McCarthy	$ 450	24
Dominion Resources	Wm. W. Berry	$ 467	19
DPL	Peter H. Foster	$ 461	21
Duke Power	Wm. S. Lee	$ 402	28
Duquesne Light	J. A. Arthur	$ 202	68
El Paso Electric	Evern R. Wall	$ 305	46
Florida Progress	Andrew H. Hines	$ 516	16
FPL Group	M. McDonald	$ 543	13
General Public Utility	Wm. G. Kuhns	$ 393	31
Gulf States Utilities	E. Linn Draper	$ 262	56
Houston Industries	D. D. Jordan	$ 579	9
Idaho Power	R. J. O'Connor	$ 190	71
Illinois Power	W. J. Kelley	$ 326	44
Ipalco Enterprises	Zane G. Todd	$ 529	15
Kansas City P & L	Arthur J. Doyle	$ 268	52
Kansas Gas and Electric	Wm. K. Cadman	$ 206	66

COMPANY	CHIEF EXECUTIVE OFFICER	($000) SALARY AND BONUSES	RANK IN INDUSTRY
Kentucky Utilities	Wm. B. Bechanan	$ 229	61
Long Island Lighting	Wm. J. Catacosinos	$282	47
Louisville Gas and Electric	Robert L. Royer	$ 186	72
Middle So. Utilities	Edwin Lupberger	$ 351	39
Minnesota Power	Jack Rowe	$ 394	30
Montana Power	W. P. Schmechel	$ 273	49
New England Electric	S. Huntington	$ 368	36
NY State Electric and Gas	Wells P. Allen	$ 261	57
Niagara Mohawk Power	J. G. Haehl Jr.	$ 371	34
Northeast Utilities	Wm. B. Ellis	$ 463	20
No. Indiana Public Svc.	Ed. A. Schroer	$ 328	42
No. States Power	D. W. McCarthy	$ 531	14
Ohio Edison	Justin T. Rogers	$ 428	26
Oklahoma Gas and Elect.	J. G. Harlow	$ 353	38
Pacific Gas and Elect.	Richard Clark	$ 452	23
PacifiCorp	Don C. Firsbee	$ 607	8
Pennsylvania P & L	R. K. Campbell	$ 315	45
Philadelphia Electric	J. L. Everett	$ 370	35
Portland General	Robert H. Short	$ 326	43
Potomac Electric	W. R. Thompson	$ 627	6
Public Service of Colorado	R. F. Walker	$ 262	55
Public Service of Indiana	H. A. Barker	$ 206	65
Public Service of NH	R. J. Harrison	$ 216	63
Public Service of NM	Jerry D. Geist	$ 563	11
Public Service E & G	E. J. Ferland	$ 416	27
Puget Sound P & L	John W. Ellis	$ 237	58
Rochester G & E	Paul W. Briggs	$ 268	51
San Diego G & E	Thomas A. Page	$ 452	22
Scana	J. A. Warren	$ 233	60
So. Calif. Edison	H. P. Allen	$ 684	4
So. Company	E. L. Addison	$ 697	3
Southwestern Public Service	B. Ballengee	$ 266	54
TECO Energy	H. L. Culbreath	$ 614	7
Texas Utilities	P. G. Brittain	$ 470	17
Tucson Electric	Einar Greve	$1,625	1

COMPANY	CHIEF EXECUTIVE OFFICER	($000) SALARY AND BONUSES	RANK IN INDUSTRY
Union Electric	Wm. E. Cornelius	$ 436	25
Union Illuminating	G. A. Edwards	$ 226	62
Utah Power and Light	J. A. Taylor	$ 204	67
Washington Water	Paul A. Redmond	$ 198	69
Wisconsin Electric	C. S. McNeer	$ 361	37
Wisconsin P&L	J.R. Underkofler	$ 266	53

AVERAGE SALARY AND BONUSES IS $385,239

SOURCE: FORBES, June 15, 1987

Prepared by: Department of Research
and Education, I.B.E.W.
July, 1987

REMARKS BY C. H. DEAN, JR., CHAIRMAN
TENNESSEE VALLEY AUTHORITY
BEFORE THE SUBCOMMITTEE ON NUCLEAR REGULATION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
DECEMBER 9, 1987 WASHINGTON, D.C.

Mr. Chairman, Members of the Subcommittee, my name is Charles H. Dean and I am Chairman of the Tennessee Valley Authority. We appreciate the opportunity to testify today on the findings and recommendations of the Southern States Energy Board's study of TVA.

While we do not agree with all aspects of that study, we appreciate the interest that Governor Baliles and the committee members have shown in TVA and its future. We recognize the constructive nature of many of the committee's final recommendations. In fact, some of the study's significant findings parallel our own concerns.

In particular, the report underscores one of the principal problems we face as an organization, which is TVA's inability to pay market rate salaries that can attract and retain top-level managers in highly competitive technical fields.

Because that issue is especially critical to the future of TVA's nuclear power program, I will return shortly to this very important finding.

First, let me mention some other important areas of agreement. Several relate to the report's recommendations on internal organization.

For example, we certainly agree as to the need to establish the General Manager as TVA's Chief Operating Officer, which has been done. We have also created the position of Chief Financial Officer at the level of Assistant General Manager.

In addition, we have established a Corporate Support Staff to serve the Board and General Manager by bringing essential policy matters to the Board's attention in a form ready for decision and by directing management decisions to the General Manager in an orderly, well-staffed way.

The Board launched these initiatives last April following recommendations of the well-regarded auditing and management consulting firm, Coopers & Lybrand, which we had commissioned to assess our top management situation.

Another internal initiative is in harmony with the Committee's recommendations for "Establishing Accountability." In 1986 we created an Office of the Inspector General that reports directly to the Board. Through its audit functions and investigations of waste, fraud, and abuse, that office already has saved TVA millions of dollars.

Other SSEB recommendations relate to TVA's nuclear program. We have taken significant steps to bring our nuclear power system back online and to keep it operating safely and reliably.

In January 1986, we contracted for the services of Retired Admiral Steven White to head TVA's nuclear recovery efforts. Under his leadership, TVA is correcting both technical and management problems.

The Nuclear Regulatory Commission has acknowledged our progress. James G. Keppler, who until recently was in charge of overseeing TVA's nuclear recovery effort, said TVA has made "the radical and effective changes" that will "lead to the restart of the plants."

We are confident in Mr. White's ability to return TVA's nuclear units to safe and efficient service.

In addition to our nuclear program, the SSEB report also focuses on TVA's coal-fired and hydroelectric plants. These units are the backbone of our power system, and they are performing so well that they are breaking their own records for peak performance.

Many of TVA's coal-fired plants have consistently ranked as among the most efficient in the country and our Bull Run Steam Plant has often ranked as the most efficient in the country.

Last fiscal year, our 11 operating fossil units broke an all-time TVA generation record by producing more than 85 billion kilowatthours. And, our production costs were on the average substantially less than those of other utilities considered to be among the best in the country.

Our residential rates still are among the lowest in the country, and we're offering new power pricing options to make sure that our industrial customers' rates stay competitive.

Nevertheless, we are managing with one hand tied behind our backs. That's because the Federal pay cap is a constant threat to recruiting and retaining experienced, top-level managers--the essential human resources we need to remain competitive.

The SSEB Advisory Committee reported that salaries paid to key power program executives at other utilities--many of them far smaller than TVA--are three to eight times the maximum salary at TVA.

As Board members, we have never asked for raises for ourselves, but only for permission to pay some key executives more than we make.

As a public utility, we are unique because we are also a Federal agency. We are aware of no other public or private utility that operates commercial, power-producing nuclear plants which must contend with such pay restrictions.

This artificial limitation does not recognize the savings that can result from good management, or the fact that money for TVA's power program comes from the TVA region's power consumers rather than the Nation's taxpayers.

No amount of organizational adjustment will solve the pay cap problem, because it is not an organizational problem that can be corrected internally.

We have asked Congress on many occasions to help solve this crucial problem. For whatever reason, this help has not been forthcoming. And we have paid a heavy price.

Because the pay cap prevents TVA from paying market salaries necessary to retain career managers of that caliber as regular employees, TVA ended up paying premium contract fees to gain access to the services of experienced nuclear managers.

Not only have we been unable to recruit all of the expertise we need, but we have also trained and cultivated many technical and management employees just to lose them to higher paying companies.

The pay cap robs us of the corporate independence and flexibility of management action that TVA's founders envisioned. Every outside organization that has examined TVA over the past few years has come to the same conclusion: TVA must have relief from the Federal pay cap if it is to carry out its mission.

The SSEB report also hits the mark in a number of other areas. Let me briefly mention just a few.

- o The economic justification of nuclear restoration and construction plans. We conducted such a study and published the results in a report last July, and we are reassessing this annually. The study supports our current plan.

- o A provision for the retirement of additional debt as soon as the nuclear restoration program is clarified. We will consider the use of surplus funds to retire our debt as such funds become available.

- o Improvement in the performance of our large coal-fired units. Although we have made significant progress in the performance of these units, we agree there is room for more improvement, at least for the ones we plan to keep in service indefinitely.

- o Successful transfer of responsibilities for operation of TVA's nuclear units to permanent TVA staff. The Office of Nuclear Power has established management training and development programs to prepare TVA managers to take control of the program when contract personnel are phased out. We may continue to need some contract managers in key spots as long as pay cap relief is not forthcoming.

With regard to recommendations concerning TVA's general structure and organization, let me assure you we also are looking at all of the alternatives.

Last August, the General Manager released a report on "Options for Structure and Organization of TVA." We made this report available to the public and TVA employees. We will be happy to make this report available to members of this Subcommittee.

Among other topics, the report examines the potential for more formalized reviews and public hearings, an independent board of rate experts, and a citizen advisory council for TVA.

This report is intended to encourage an informed discussion of organizational alternatives available to the agency, as well as changes in TVA that would require legislative action.

Let me conclude by again thanking SSEB Advisory Committee members for the time and effort they put forth in preparing their study. Again, while we still have some areas of disagreement, we believe the Committee's final recommendations are constructive, balanced, and worthy of serious consideration.

The report was concerned primarily with the operation of the TVA power system, and we should point out that TVA is judged also on its ability to contribute to the quality of life in the region it serves by engaging in activities that benefit the entire Nation. For example, TVA fertilizer research has led to products that produce most of the food consumed in the world today.

Any organization of TVA's size and complexity must examine itself and its performance, and be open to the constructive observations of others. This introspection is what separates organizations which can grow and prosper through change from those that cannot.

TVA has demonstrated time and again that it can change, it can tackle problems of immense dimensions, and it can succeed. We welcome the deliberation of this committee and the insights of its members.

TESTIMONY OF RICHARD M. FREEMAN
BEFORE THE SUBCOMMITTEE ON NUCLEAR REGULATION
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
DECEMBER 9, 1987 WASHINGTON, D.C.

My name is Richard Freeman. I was a director of TVA from October 1978 until I resigned in February of 1986. Prior to serving as a director of TVA, I was an officer and director of the Chicago and North Western Transportation Company, a railroad with over 10,000 employees, operating in eleven mid-western states. In my first several years after graduating from Columbia University Law School, I was an attorney with TVA. My working career has been almost equally divided between the public and private sectors.

I approach the issue of whether the Board of Directors of TVA should be restructured from the view that TVA's problems in building and operating nuclear plants are in no way impacted by the structure of its Board. The cause of TVA's nuclear problems lies elsewhere. Furthermore, as serious as TVA's nuclear problems are, they are no more serious than those of some private utilities that have large, part-time boards of directors and strong chief executive offices.

With this background, I first wish to examine the supposed advantages of large, part-time boards and then enumerate the deficiencies I see in engrafting that kind of structure on TVA.

It is suggested that a large part-time board with a strong CEO is in accord with current practices of public and private organizations. The difficulty with this argument is that no public or private organization is in any way comparable to TVA which has a broad mission, not simply to produce electricity, but more importantly to help develop a significant region of the nation.

Those who make this analogy simply do not understand the dynamics of a regional development agency of the scope of TVA. The founders of TVA recognized this distinction between TVA and other kinds of corporate entities, public and private, when they structured TVA with a small full time Board.

It is urged that a large part-time board with a strong CEO would fix a clear distinction between policy and management. The Board would be responsible for broad policy, long range planning and goal setting, and the CEO would be responsible for executing the policies, plans, and goals. This sounds reasonable in theory, but breaks down in practice. The argument assumes that the distinction between policy and management is clear; this simply is not the case in the real life of a vital institution such as TVA.

But, in any event, there is no chance that a part-time board could become knowledgeable enough about the complex issues confronting TVA--and particularly the interrelationships among these issues--to set policy, plans and goals intelligently and effectively. A part-time board would either mindlessly ratify the bureaucracy's agenda or, worse still, attempt to impose on the bureaucracy an uninformed agenda of its own. I suggest that the former is more likely, and that the strong centralized chief executive urged by those who would change the act could become an uncheckable, bureaucratic autocrat of the worst sort.

Some argue that a large, part-time board would be more responsive and accountable than the current small, full time board. I find that a curious argument. The larger the number of directors the more diffused the responsibility. An individual director on a large board can comfortably rationalize that his or her vote won't make a difference. But, having served on TVA's three-person board, I can assure you that under the present structure there is no place to hide and there is a deep-seated sense of accountability to the TVA Act and to its purposes.

Let me turn to the problems I see with the proposals to enlarge the board.

I believe the board governing TVA needs to be more involved with the guts of the issues confronting TVA and the region it serves, not less involved. In my experience, unless one has a keen grasp of the facts about an issue, and the interrelationships among related issues, one cannot make wise decisions. To get that full grasp of the many issues regularly facing TVA requires all the time and attention one can bring to the job 365 days a year. Being an effective director of TVA is a full-time, not a part-time job. Clearly, I make a distinction between TVA with its multi-faceted mission and the relatively straight forward and less complex mission of a private utility concerned only with producing and selling electricity.

As I have already implied, in a large, complex federal agency such as TVA, it is important for those governing the agency to direct the bureaucracy and not for the bureaucracy to direct the directors. In this, too, TVA differs from the private sector. Those in charge of a corporation in the private sector have more incentives and disincentives to offer their managers and employees. Thus, it is less likely that the managers and employees will become as entrenched and immovable as those in the public sector. In its early days, TVA was--in this respect--more like a private sector corporation, but through the years a number of "carrots and sticks" have been removed from the powers of the Board. As a result, TVA has become more like a public bureaucracy than a private sector corporation. This makes it even more important for the directors of TVA to be knowledgeable enough to direct the bureaucracy. A part-time board simply can not be sufficiently involved in the goings on in the institution to do that job.

Finally, a large, part-time board with members appointed to represent specific states of the region can only be divisive. The very process of selection will promote a parochialism among board members in approaching Valley-wide issues. In its 50-plus years history, TVA has been relatively free from this kind of approach to the area's problems. Issues which are difficult enough when analyzed in a straight-forward, factual way, would become hopelessly muddled when viewed from the several individual interests of the Valley's sub-regions. Indeed, I regard the potential for politicizing the decisionmaking process of TVA as one of the most serious deficiencies in the large, part-time board proposals.

In sum, I see no advantage in enlarging the board with part-time members. I believe much would be lost.

PRELIMINARY REVIEW OF THE SCHEDULE FOR THE RESTART
OF BROWNS FERRY UNITS 1 AND 3 AND COMPLETION OF
WATTS BAR AND BELLEFONTE NUCLEAR PLANTS

Major Findings and Conclusions

Over the past six months, TVA has been conducting a comprehensive review of the power supply options with respect to the restart of Browns Ferry units 1 and 3 and the completion of construction at Watts Bar and Bellefonte. An earlier review indicated that the restart of units 1 and 2 at Sequoyah and unit 2 at Browns Ferry should be completed at the earliest possible date to meet TVA's overall power supply needs. The objective of the current review is to examine those options which provide the TVA ratepayer with a reliable supply of power at the lowest cost.

From this review, the following conclusions have been drawn.

1. TVA should proceed with the restart of Browns Ferry units 1 and 3 on a schedule consistent with the Office of Nuclear Power's early restart dates.

2. TVA should complete the construction of both units at the Watts Bar plant on a schedule consistent with the Office of Nuclear Power's early completion dates.

3. Either canceling or delaying the operation of Browns Ferry units 1 and 3 and Watts Bar would increase costs to the TVA ratepayer.

4. Uncertainty in the outlook for nuclear operation and maintenance costs and capital additions and improvements prevents TVA from drawing a clear

conclusion at this time concerning the completion of Bellefonte Nuclear Plant. Therefore, TVA is proceeding with a process to clearly define and bound the range of uncertainty in the outlook for operation and maintenance costs at its nuclear plants. Once this is accomplished, TVA will issue a final comprehensive report on all of its power supply options.

5. Since the construction and completion of Bellefonte are currently delayed to the mid-1990s, there are no significant impacts that would affect the level of rates in 1988.

Power Supply Options for the Watts Bar Plant and Browns Ferry Units 1 and 3

A wide range of alternative power supply options was developed in order to determine the optimum schedule for the return to service of Browns Ferry units 1 and 3 and the completion of the Watts Bar Nuclear Plant. A preliminary screening reduced the power supply options to the key options shown in table 1.

Table 1

KEY POWER SUPPLY OPTIONS FOR WATTS BAR PLANT AND BROWNS FERRY UNITS 1 AND 3

	Restart/Commercial Operation Dates			
	Browns Ferry		Watts Bar	
Power Supply Options	Unit 1	Unit 3	Unit 1	Unit 2
Early Schedule for Browns Ferry 1 and 3 and Watts Bar 1 and 2	1991	1989	1989	1990
Early Schedule for Browns Ferry 1 and 3 Cancel Watts Bar	1991	1989	X	X
Cancel Browns Ferry 1 and 3 and Watts Bar	X	X	X	X
Early Schedule for Browns Ferry 3 and Watts Bar 1 Delay Browns Ferry 1 and Watts Bar 2	1996	1989	1989	1997

Although each of the power supply options is related to the operation of the nuclear units, each option implies alternative options for the operation of TVA's existing generating system and the need and timing of capacity additions. Displacing coal-fired generation with nuclear generation is the principal cost effect of operating the nuclear units on the early schedule. The cancellation

of either the two units at Browns Ferry or Watts Bar would place continued reliance on TVA's current coal-fired system and advance the need for additional capacity. The delay of Browns Ferry unit 1 and Watts Bar unit 2 would result in increased generation from TVA's current coal-fired system, but would not affect the timing of additional capacity.

Objective and Methodology for Evaluating Power Supply Options

TVA's objective is to provide an adequate supply of power at the lowest cost to the ratepayer. This objective is defined by three decision criteria.

First, each power supply option must provide an adequate supply of power as defined by TVA's reliability criterion. TVA's reliability criterion is based on a loss-of-load probability, which is stated as the number of hours per year (168) that load cannot be met with existing capacity. For these hours, purchases may have to be made from other utilities or standard emergency procedures would be implemented. No utility can afford to be 100 percent reliable. The reliability criterion is based on the lowest total cost of power for TVA customers.

Second, the costs for each power supply option are defined by revenue requirements. Revenue requirements consist of all elements of a utility's cost of service including fuel, operation and maintenance costs, depreciation, taxes, interest and net income. The present value of revenue requirements provides a basis for choosing among power supply alternatives. The decision criterion is to choose the alternative for which the present value of revenue requirements is a minimum.

The third criterion for selection of a power supply option is to optimize flexibility in the face of uncertainty since premature commitments may result in higher costs than necessary. The uncertain events which expose TVA's ratepayers to risk include load growth, fuel costs, capital costs, operation and maintenance costs, environmental regulation, and other events which have increased the uncertainty in the electric utility industry.

TVA's methodology for evaluating power supply options is a formal risk or decision analysis process. This approach provides the framework for explicitly considering all the costs and also the uncertainty which could change the costs of alternative power supply strategies.

Key Assumptions or Factors Which Influence Costs

An extensive review was conducted of the major factors which determine the costs of the power supply options. This review identified those factors which would cause the largest change in the costs of the options. Uncertainty in the major factors could cause large changes in the costs of power supply options. The resulting changes in the costs could change which power supply option is the least cost option.

The most important uncertain factors in the analysis are the outlook for: electricity sales, the capacity factors of the nuclear units, coal prices, nuclear operation and maintenance costs plus capital additions and improvements (nuclear O&M/A&I), and the cost of new coal-fired capacity.

Evaluation of Power Supply Options

Adequate Supply

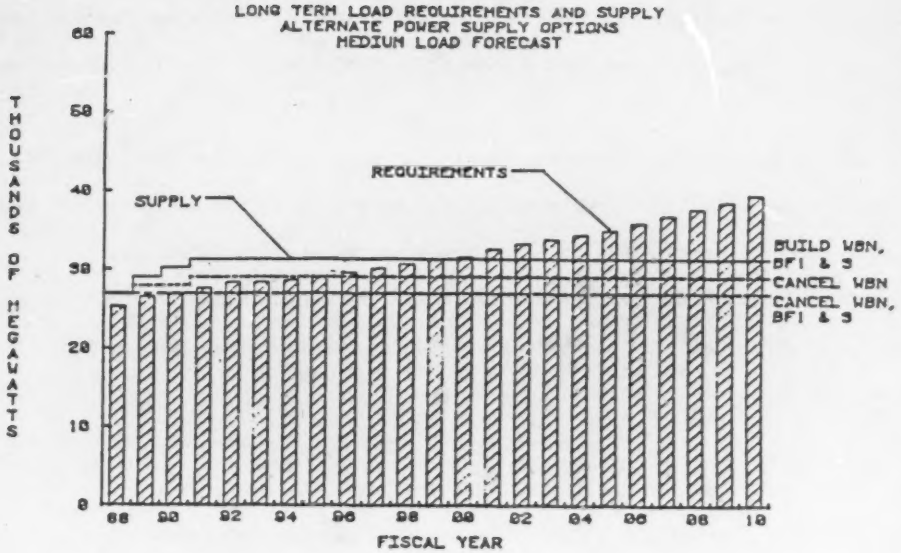
Each power supply option has a different impact on power system reliability. None of the options reduced TVA's reliability below the desired level.

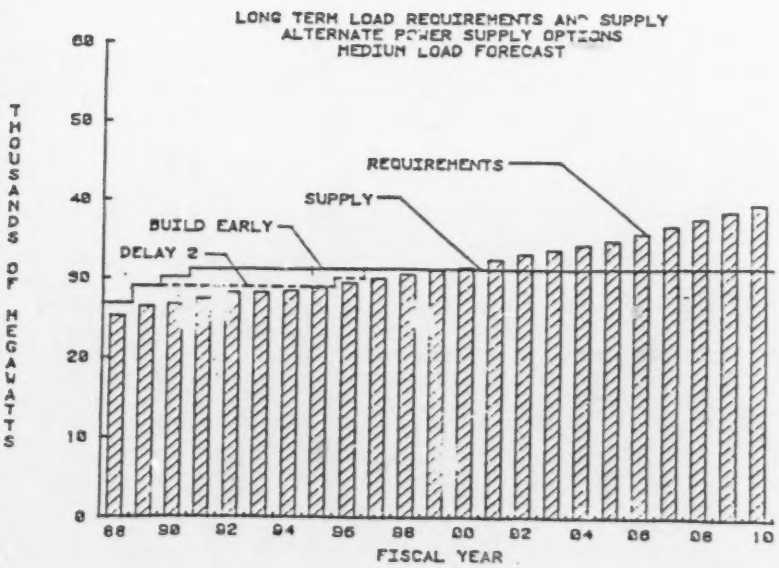
Long-term capacity requirements and supply are summarized in the top chart of figure 1 for the midrange outlook for electricity sales or loads. The power supply is shown by the solid line and includes both units 1 and 2 at Sequoyah Nuclear Plant as well as unit 2 at Browns Ferry. Capacity requirements are represented by the bars in the chart. Capacity requirements represent the annual peak load or system demand plus capacity reserves. The difference between the supply line and requirement bars indicates the surplus or deficit of capacity.

The top supply line includes completion of the two units at Watts Bar (WBN) and the restart of the remaining two units at Browns Ferry (BF 1 & 3), all on the earliest possible schedule. With the medium load forecast, there will be excess capacity from 1989 through the late 1990s.

The supply representing the restart of the two remaining units at Browns Ferry and the cancellation of Watts Bar Nuclear Plant is shown in the middle supply line. With this scenario there is a modest amount of excess capacity through the mid-1990s, but there is a need to replace the capacity of the Watts Bar units in 1996 and 1998. Assuming a 7-year leadtime to initiate and complete a coal-fired power plant, a decision to replace these units could be required

Figure 1


LONG TERM LOAD REQUIREMENTS AND SUPPLY
ALTERNATE POWER SUPPLY OPTIONS
MEDIUM LOAD FORECAST
THOUSANDS OF MEGAWATTS
60
50
40
30
20
10
0
REQUIREMENTS
SUPPLY
BUILD WBN, BF1 & 3
CANCEL WBN
CANCEL WBN, BF1 & 3
88 90 92 94 96 98 00 02 04 06 08 10
FISCAL YEAR


LONG TERM LOAD REQUIREMENTS AND SUPPLY
ALTERNATE POWER SUPPLY OPTIONS
MEDIUM LOAD FORECAST
THOUSANDS OF MEGAWATTS
60
50
40
30
20
10
0
REQUIREMENTS
SUPPLY
BUILD EARLY
DELAY 2
88 90 92 94 96 98 00 02 04 06 08 10
FISCAL YEAR

over the next one to three years. Of course, decisions could be delayed which would eventually require the purchase of firm capacity from a neighboring utility or construction of less economical but shorter leadtime supply options.

The bottom supply line in the top chart of figure 1 indicates the supply if Browns Ferry units 1 and 3 were not restarted and Watts Bar Nuclear Plant was not completed. This situation indicates shortages of supply requiring immediate decisions to replace the capacity. This option may require purchases of capacity or the installation of short leadtime capacity before base-load capacity can be built.

The power supply option for the delay in operation of Browns Ferry unit 1 and the completion of Watts Bar unit 2 is shown in the bottom chart of figure 1. The top supply line includes Browns Ferry units 1 and 3 and Watts Bar units 1 and 2 on the earliest possible schedule (BUILD EARLY). With the lower supply line, unit 2 at Watts Bar and unit 1 at Browns Ferry are delayed several years each (DELAY 2), which reduces the excess capacity in the early 1990s.

Costs of Power Supply Options

Costs of Coal-Fired Plant Versus Cost to Complete/Restart Nuclear Units--For the midrange set of assumptions, the baseline cost comparison is shown in table 2. This includes the costs for construction, operation and maintenance, fuel, and capital additions and improvements for a new coal-fired plant. This table also shows these same costs for Browns Ferry units 1 and 3 and Watts Bar Nuclear Plant, with construction costs represented on a cost-to-complete

basis. (The investments made at each plant to date are costs that must be paid regardless of future action.) For the midrange set of assumptions, TVA requires additional capacity if the nuclear units are not completed. Thus, the basic comparison of costs is to restart or complete the nuclear units or to replace them with coal-fired capacity as the need develops.

Table 2

COST COMPARISON OF NUCLEAR UNITS AND A NEW COAL-FIRED PLANT
PRESENT VALUE - MILLS PER KILOWATTHOUR
1995 IN-SERVICE YEAR

	New Coal-Fired Plant	Watts Bar	Browns Ferry
Construction Costs (Including Additions and Improvements)	38.7	15.4	15.3
Operation and Maintenance	13.8	26.7	27.8
Fuel	31.4	12.7	12.7
Total	83.9	54.7	55.8

As indicated in table 2, the cost of a newly constructed coal-fired plant is approximately 53 percent greater than the cost to complete Watts Bar and 50 percent greater than the costs to restart Browns Ferry units 1 and 3.

If this were the only information that one had to evaluate, and one knew this information was certain, then the choice of a power supply option would be relatively easy. The basic problem lies with the uncertainty concerning the outlook for load growth, fossil fuel prices, operation and maintenance costs, and costs to complete or restart the nuclear units. Uncertainties in the

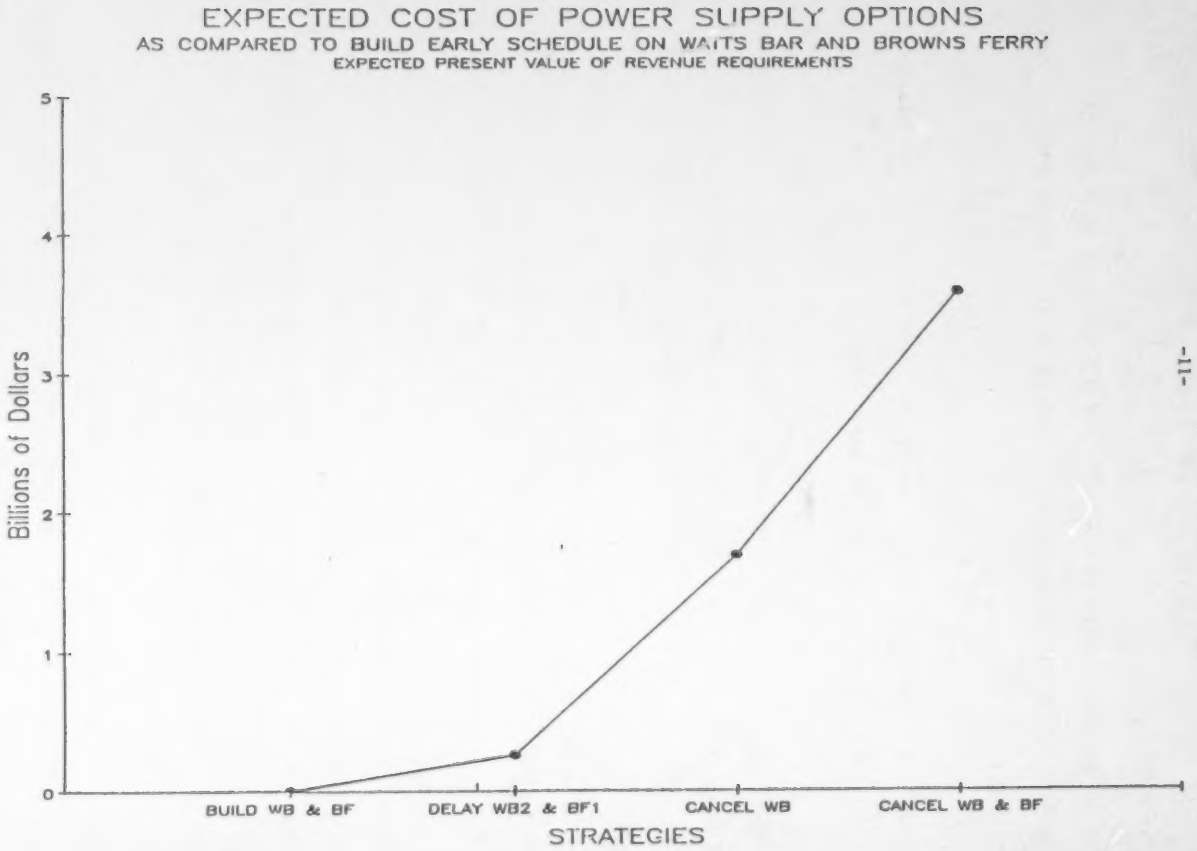
outlook for these major factors could change the comparison between a new coal-fired plant and a nuclear plant. Thus, the uncertainties in these factors are an important consideration in choosing the lowest cost power supply option.

Expected Costs Including Uncertainty--The expected costs of the alternative power supply options considering the uncertain factors are shown in figure 2. These results include the cost variations due to the uncertain variables: load growth, fossil fuel prices, cost of replacement capacity (coal-fired plant), capacity factor for nuclear units, and the operation and maintenance costs of nuclear plants.

The costs in figure 2 are stated as the present value of revenue requirements. The present value of revenue requirements is based on the difference in revenue requirements among power supply options with the costs of building Watts Bar and restarting Browns Ferry units 1 and 3 on the early schedule used as the base.

The costs associated with canceling Watts Bar are greater than the costs of completing Watts Bar. The present value of revenue requirements, costs, for canceling Watts Bar is $1.7 billion greater than the cost of completing Watts Bar on the early schedule. The costs are even higher for canceling both Watts Bar and Browns Ferry units 1 and 3. The present value of revenue requirements is $3.6 billion greater than costs of building Watts Bar and restarting Browns Ferry units 1 and 3. The present value of revenue requirements for delaying

Figure 2


EXPECTED COST OF POWER SUPPLY OPTIONS
AS COMPARED TO BUILD EARLY SCHEDULE ON WATTS BAR AND BROWNS FERRY
EXPECTED PRESENT VALUE OF REVENUE REQUIREMENTS
Billions of Dollars
5
4
3
2
1
0
BUILD WB & BF
DELAY WB2 & BF1
CANCEL WB
CANCEL WB & BF
STRATEGIES

Watts Bar unit 2 from 1990 to 1997 and Browns Ferry unit 1 from 1991 to 1996 is $260 million greater than the costs of building these units on the early schedule.

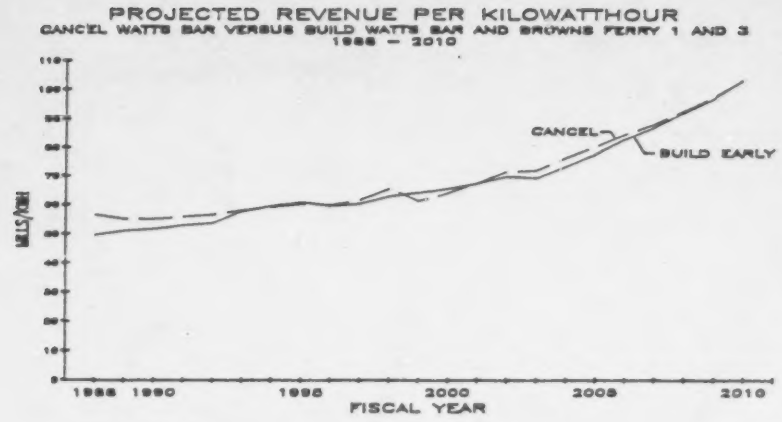
Thus, the lowest cost option, based on expected costs, is to restart Browns Ferry units 1 and 3 and complete Watts Bar on the early schedule.

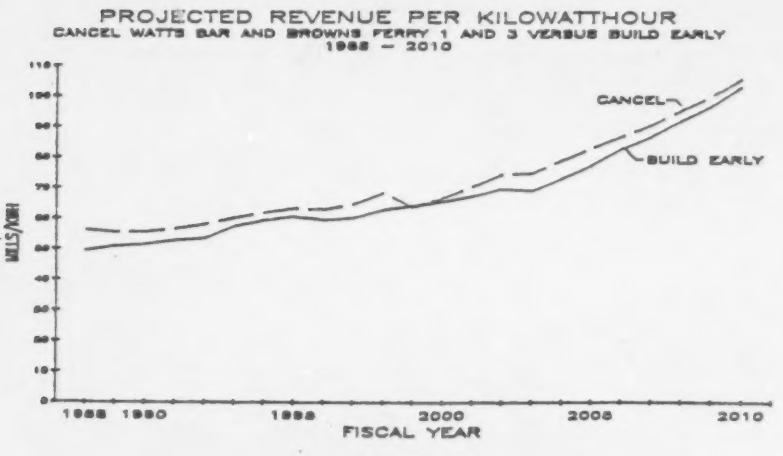
Projected Rates for the Power Supply Options--Although the costs of the power supply options are represented by the present value of revenue requirements, the electric rates associated with each power supply option can have different patterns through time. TVA's costs are translated to electric rates through accounting and financial conventions, procedures, and policies. Electric rates are defined as TVA's revenue per kilowatthour (kWh). Thus, the electric rates are averages for revenues collected from all of TVA's customers.

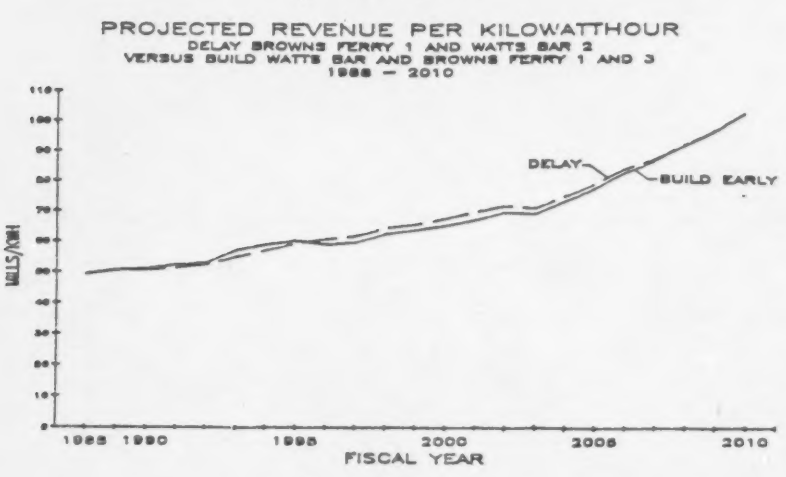
The projected revenues per kWh from 1988 to 2010 for the power supply options are shown in figure 3. The electric rate projections are shown for the midrange set of assumptions for all power supply options.

The top chart in figure 3 compares the revenue per kWh for building Watts Bar and Browns Ferry units 1 and 3 on the early schedule (BUILD EARLY) to the cancel Watts Bar option (CANCEL). Cancellation of Watts Bar results in higher rates from 1988 to 1992, resulting from the writeoff of sunk capital costs on the Watts Bar Nuclear Plant. If Watts Bar is canceled, the rate increase is

Figure 3


PROJECTED REVENUE PER KILOWATTHOUR
CANCEL WATTS BAR VERSUS BUILD WATTS BAR AND BROWNS FERRY 1 AND 3
1988 – 2010
CANCEL
BUILD EARLY
MILLS/KWH
1988 1990 1995 2000 2005 2010
FISCAL YEAR


PROJECTED REVENUE PER KILOWATTHOUR
CANCEL WATTS BAR AND BROWNS FERRY 1 AND 3 VERSUS BUILD EARLY
1988 – 2010
CANCEL
BUILD EARLY
MILLS/KWH
1988 1990 1995 2000 2005 2010
FISCAL YEAR


PROJECTED REVENUE PER KILOWATTHOUR
DELAY BROWNS FERRY 1 AND WATTS BAR 2
VERSUS BUILD WATTS BAR AND BROWNS FERRY 1 AND 3
1988 – 2010
DELAY
BUILD EARLY
MILLS/KWH
1988 1990 1995 2000 2005 2010
FISCAL YEAR

large in 1988 since the writeoff of previously canceled plants would be included in rates, whereas with the build early case the writeoff of previously canceled plants is not included in rates until 1989. From 1993 to 2002 the cancellation of Watts Bar would result in about the same rates since TVA needs to replace Watts Bar during this period. After 2002 the cancellation of Watts Bar would result in higher rates.

A comparison of the option to cancel Watts Bar and Browns Ferry units 1 and 3 (CANCEL) compared to building the four nuclear units (BUILD EARLY) is shown in the middle chart of figure 3. The cancellation option produces higher rates throughout the study period due to the writeoff on the canceled nuclear units and the cost of replacement capacity.

The bottom chart of figure 3 shows the electric rates for the option to delay Browns Ferry unit 1 and Watts Bar unit 2 (DELAY) as opposed to building Watts Bar and Browns Ferry units 1 and 3 on the early schedule (BUILD EARLY). The delay option generally shows lower rates from 1988 to 1995 due to the reduced expenditures on the construction or restart of the nuclear units. From 1995 to 2010 the delay option results in higher rates as construction is resumed. Note that even though rates are lower for the short term, delay is not the least cost option over the entire period.

Flexibility in the Face of Uncertainty

Since there is uncertainty in the outlook of the key parameters, there are bound to be differing opinions about the values that should be used for variables such as load growth, nuclear O&M/A&I, etc. The important question

Summary

TVA faces a great deal of uncertainty in the choice of power supply options dealing with the restart of Browns Ferry units 1 and 3 and the completion of Watts Bar.

The conclusion of this review is:

1. An adequate supply at the lowest cost to the ratepayer can best be achieved by the restart of Browns Ferry units 1 and 3 and the completion of Watts Bar on the early return-to-service schedule.

2. Even faced with large uncertainties, the delay of any of these units does not significantly reduce the uncertainty about future operation, system reliability, or cost to the ratepayer.

3. Uncertainty in the outlook for nuclear O&M/A&I prevents TVA from drawing clear conclusion at this time concerning the completion of Bellefonte Nuclear Plant. Therefore, TVA is proceeding with a process to clearly define and bound the range of uncertainty in the outlook for operation and maintenance costs at its nuclear plants. Once this is accomplished, TVA will issue a final comprehensive report on all of its power supply options.

is, How can differing opinions about the forecast of the uncertain variables affect which power supply option is the lowest cost option? For example, would knowing exactly what load forecast is going to occur in the future change the lowest cost option from building Watts Bar and Browns Ferry units 1 and 3 on the early schedule to another power supply option? The answer to this specific question is no. Even knowing that low load growth would occur would not change the decision to build Watts Bar and Browns Ferry units 1 and 3 on the early schedule.

The major uncertain variables are: load growth, coal prices, cost of replacement capacity, nuclear capacity factor, and nuclear O&M/A&I. For each of these variables, a range of projections was prepared which represents uncertainty in the outlook for these variables. If we knew exactly what the future would be for each of these variables, would TVA make a different choice? The review of the full range of uncertainty in these variables indicates that the low-cost decision continues to be the option to build Watts Bar and Browns Ferry units 1 and 3 on the early schedule.

Could TVA gain additional flexibility and information about the future by delaying the operation of the nuclear units? The conclusion is that delaying the restart of Browns Ferry units 1 and 3 and the completion of Watts Bar would not provide sufficient additional information about the outlook for the uncertain variables. Thus, the costs associated with delaying these units is not offset by the potential for reduced costs if TVA knew more about the future. Therefore, increased flexibility cannot be gained by delaying Watts Bar and Browns Ferry units 1 and 3.

III. FOSSIL SYSTEM PERFORMANCE

Since the mid-1970s the role of TVA's coal-fired plants in power supply has been through rapid changes, falling back as other sources were available and then unexpectedly being called on for additional production. But the fossil system has done a remarkable job of meeting these unpredictable challenges.

TVA's fossil plants became the baseload power producer in the region in the 1950s and continue to be in the 1980s. Over the past decade a focused, short-term program has corrected unit shutdown causes to improve reliability and reduce costs. Now TVA is developing a longer-term program to extend the operating lifetimes of its fossil plants through the 1990s and beyond.

In 1974, TVA's first nuclear generating unit, Browns Ferry, came on line and TVA entered the nuclear era. However, the 1975 fire at Browns Ferry set back operation of all three units there. Meanwhile regulatory requirements in the nuclear industry resulted in more than 1,600 design changes in the Sequoyah Nuclear Plant being built near Chattanooga.

The delays meant TVA's large fossil system had to produce a greater percentage of the load for a longer period of time than originally planned, and there was a penalty for this. TVA simply could not take these units out of service for the longer outages required for major boiler, turbine and generator maintenance and rehabilitation. As a

result, the system's equivalent forced outage rate (EFOR) worsened from 13 percent in 1973 to 27 percent in 1978.

In the 1970s there were also national power shortage as a booming economy brought higher and higher power demands. Brownouts became frequent, especially in the Northeast. TVA and other power producers were called on by utilities in the Northeast to furnish excess power through the interconnected power grid to keep the lights on. TVA participated through its exchange arrangements with neighboring systems, providing power for a number of days each summer while these systems in turn supplied power over high voltage lines to the north and east.

Restoring Reliability

In 1978 with the return to service of all three nuclear units at Browns Ferry, there was time to schedule larger coal-fired units off line for extended maintenance. TVA began an Availability and Reliability Improvement Program, a major maintenance effort to extend over several years at the fossil plants.

Extensive repairs of boilers and auxiliaries, replacements of turbine spindles, and upgrades of control systems were essential to bring these units back to an acceptable level of service.

TVA selected the capital improvement projects that yielded the most benefit to the consumers of TVA power -- by identifying the 10 top contributors to equivalent forced outages at each plant, then concentrating maintenance and capital improvements where necessary to remedy those top 10 precursors to shutdown. TVA took steps to ensure

Equivalent Forced Outage Rate
TVA Large Coal-Fired Units*

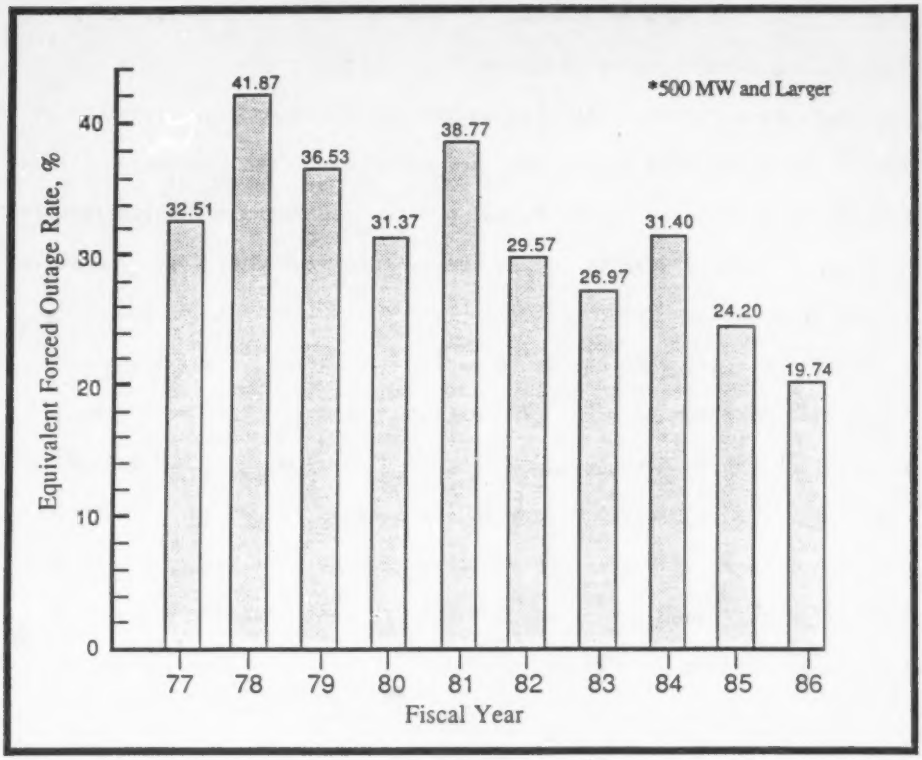


Chart 9

that it realized maximum benefits from each capital dollar spent by instituting formal project management techniques.

Results were good. Efforts concentrated on the nine largest coal-fired units (500 MW and up), and after eight years of major refurbishing, the equivalent forced outage rate for these units improved from 42 percent in 1978 to 20 percent in 1986 (see Chart 9). The overall system EFOR improved from 27 to 14 percent over the same period.

Shortly after setting up the Availability and Reliability Improvement Program in 1978, TVA initiated several other wide ranging programs to ensure that its coal-fired system remained flexible and competitive in the future. Some of the more important initiatives were the Heat Rate Improvement Program, the Plant Support System, the cost effective procurement of higher quality coal, and various programs to more fully develop and use the human resources of the fossil system.

An Aging System Back in the Top Ten

The Heat Rate Improvement Program reversed a long term decline in efficiency that is typical for an aging system; the average age of TVA fossil units is now 30 years.

Power plant efficiency is measured in terms of the heat energy--in British Thermal Units--needed to produce a kilowatthour of electricity. For the TVA fossil system the average heat rate improved from 10,140 BTUs in 1978 to 9,940 BTUs in 1986. These gains were made in spite of the addition of several smokestack scrubbing systems, fly ash precipitators

and other environmental control equipment--measures that generally involve some reduction in plant efficiency.

The 200-BTU improvement saved about $26 million in coal costs in 1986 alone.

The improvement in heat rate has lifted the TVA fossil system back to its long-accustomed position among the top 10 most efficient fossil power systems in the country every year since 1979. And one TVA plant, Bull Run near Knoxville, has been No. 1 in the nation for five of the last 10 years including three years in a row, 1983, 1984 and 1985.

Reducing Maintenance Costs

Several measures have helped to control maintenance costs in this period. A computerized Plant Support System was created to improve the planning, scheduling and cost of major maintenance activities at each power plant.

As high coal prices softened, better quality coal was purchased within environmental constraints, which meant less boiler and ash disposal maintenance.

More flexible labor agreements were negotiated, providing greater ability to get the work done.

The combined result of these efforts was a significant turndown in maintenance expenses at all fossil plants. From 1979 to 1986, this expense dropped by 30 percent, from $10.53 a kilowatt of capacity to $7.33 a kilowatt (see Chart 10). Since this expense is a direct cost in each year's power revenue requirements, this reduction contributed to smaller rate increases for those years.

Maintenance Expense
TVA Coal-Fired System

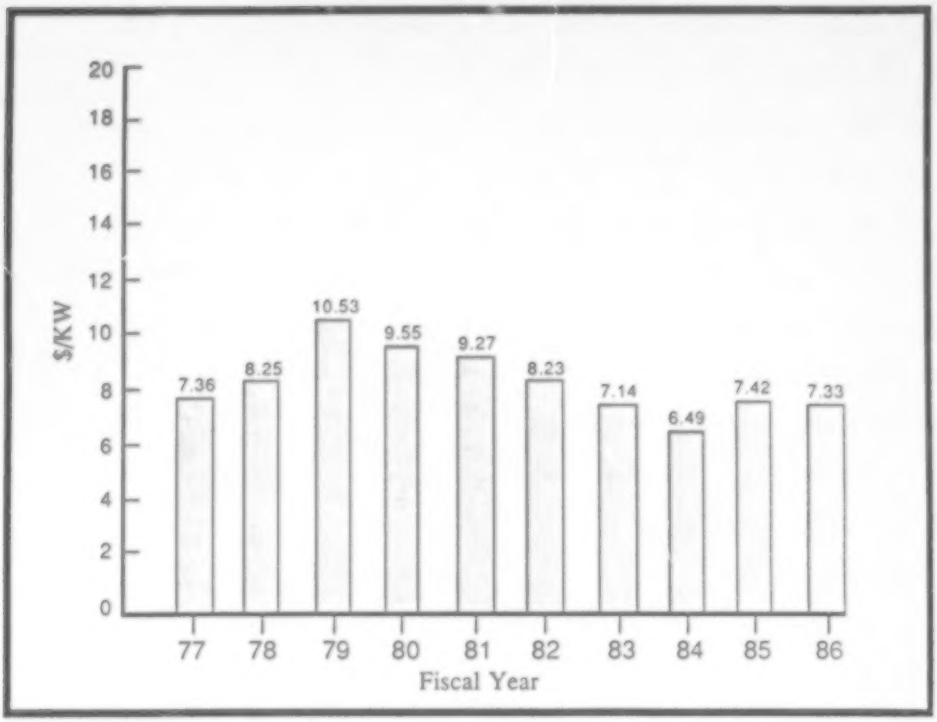


Chart 10